Privatizing Infrastructure: From Theory to Practice.
The Colombian Toll Road Case.

by

Francisco Lozano

BS Civil Engineering
Universidad de los Andes, 1990

MS Econ - Urban and Regional Planning
London School of Economics and Political Science, 1994

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Massachusetts Institute of Technology

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Signature of the Author _____
Department of Civil and Environmental Engineering

Certified by _____
Ralph Gakenheimer
Professor of Urban Planning and Civil/Environmental Engineering
Thesis Supervisor

Accepted by _____
Richard de Neufville
Chairman, Technology and Policy

Accepted by _____
Joseph Sussman
Chairman, Departmental Committee on Graduate Studies

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ABSTRACT

In the late 1970's, many countries around the world started a shift toward more liberal thinking on economic issues and conception of the state. In an attempt to reduce the size of the government, the participation of the private sector was encouraged in areas that were traditionally under the public domain. The infrastructure sector was greatly affected by this new trend; governments found in this strategy a way of financing projects that otherwise would have been delayed.

Because of the perceived importance of infrastructure for economic development, several developing countries are now promoting the participation of the private sector in infrastructure projects. The challenge they now face, is the development of an appropriate environment to support this change and attract private investors; the special nature of infrastructure projects and the diverse interests of the parties involved, demand complex structures that require great effort and commitment for success. Risk management and allocation is one of the activities that requires special attention.

A detailed study of the Colombian Toll Road Privatization Program -- complemented with the experiences in Mexico and Argentina -- embedded in the theoretical framework developed, illustrates the numerous issues that need to be faced and the reforms required for the development and implementation of such a program. Although many amendments have to be done, it is still too early to judge the success of the Colombian effort. The Colombian experience is valuable for the development of future privatization programs in the country and in other countries that decide to move from theory to practice.

Thesis Supervisor: Ralph Gakenheimer
Title: Professor of Urban Planning and Civil/Environmental Engineering

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I. INTRODUCTION

Since the late 1970s many countries around the world have started a shift towards more liberal thinking on economic issues and on a conception of the state. The pioneers of this shift were the United Kingdom with Prime Minister Margaret Thatcher (1978-1990), and the United States with President Ronald Reagan (1981-1989). This shift was marked by the belief in the reduction of the government's size, implying a larger participation of the private sector in areas where public participation has been predominant. Under this scheme, governments should not get involved in the productive sector, but instead direct their efforts towards regulation, in order to ensure an adequate treatment of market failures.

Infrastructure is a sector that had to be affected by this model, partly for ideological reasons, and partly because of the inability of governments to keep pace with investment requirements. Infrastructure and public service provision such as energy, water and sanitation, transport, and telecommunications were generally activities where government participated heavily because of their attributes of natural monopolies, public goods and/or strategic issues. Therefore, under liberal policies, this sector was to be restructured, particularly by creating a new regulatory framework that allowed private participation and responsiveness to the uniqueness of the infrastructure sector.

During this period of privatization, research has been carried out and theoretical principles have been developed to help understand what should be done in order to provide the adequate overall environment for the program's success. In addition, countries' experiences have enriched the comprehension of the issues involved in infrastructure privatization. Although the experience cannot be totally translated to other countries, a clear understanding of the issues can help policy makers act in advance and avoid potential problems in the future.

Policy makers must be aware that privatization will be successful only when developed for the right reasons and under the right framework. That is, when none of the following "seven deadly sins of privatization" is the motor behind the process (UNDP, 93):

1) Short-term revenue for the national treasury -- the wrong reason;

2) Heavy government intervention that creates distortion and does not provide anti-trust regulation -- the wrong environment;

3) Corruption and cronyism -- awarding assets or contracts without competitive bidding;

4) Budget deficit financing through the sale of national assets;

5) Weak financial strategy that does not maximize revenue and protection to national interest;

6) Weak labor strategy based on unrealistic promises to find support from employees;

7) Lack of political consensus and commitment.

It is also important to note that an inadequate selection of projects could lead to the failure of the privatization program.

Privatization Trend in the Developing World

Although the question about the causality between infrastructure and economic development lingers, a general consensus on their correlation, and on the fact that the lack of infrastructure can become a bottleneck for development (Hirschman, 1958; World Bank 1994b). Even further, the World Bank has found a correlation between development -- measured by income per capita, and the level of the infrastructure stock in per capita terms: on average, an increase of 1% in infrastructure stock, is linked with a 1% increase in the GDP -- gross domestic product (World Bank, 1994b). Because of the importance of infrastructure, in recent years several developing countries have undertaken programs

to include private sector participation in its financing, construction, and operation. Governments have found in this new strategy a way of financing projects that otherwise would have been delayed. Additionally, governments expect these programs to render efficiency gains from private sector performance. The above have been the two main reasons for undertaking concession programs.

Infrastructure requires large resources. For instance, the World Bank calculated that Latin American and Caribbean countries need to invest US$ 100 billion, only to catch up with the investment backlog resulting from the 1980's debt crisis (World Bank, 1995a). The World Bank calculated the yearly investment needs as US$ 60 billion, or 4.4% of the total GDP of the region. In addition, maintenance costs would amount to another US$ 7 million -- an extra 0.5% of GDP. This maintenance cost represents 2% of the infrastructure stock, calculated as US$ 350 billion[1].

At the heart of infrastructure privatization programs lies the management and allocation of risk. In order to attract private participants, it is necessary for parties to have a clear understanding of their responsibilities and rights. It is also a challenge for policy makers to undertake this task, while creating attractive opportunities for all the parties. In an ever more globalised world, country risks (e.g., policy changes, expropriation, inflation, devaluation, foreign exchange availability and convertibility) become an important challenge for developing countries. If they want to attract foreign resources, as well as a wider pool of potential local investors, they would have to make an extra effort to show the global community that their countries have evolved to a point where their administration is more economically than politically driven. This implies having a fiscal discipline that creates a sound macroeconomic environment. Therefore, before implementing an infrastructure privatization program, economic reform should be in place or at least in process.

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[1] The composition of the infrastructure stock - US$ 350 billion - for Latin America and the Caribbean is US$ 170 billion for the power sector, US$ 100 billion for transportation, US$ 60 billion for water and sewerage, and US$ 20 billion for telecommunications.

The Thesis

This thesis concentrates on how the theory -- the principles of the neo-liberal model -- have affected the practice since the 1980s and how the development of infrastructure provision has been shaped by the constraints of the sector and by technological advances. Chapter 3 analyzes the case of the Colombian Toll Roads and the last part presents reflections over the main issues.

Chapter 2 develops a theoretical framework, including the conditions that are believed to be necessary but not sufficient for the success of privatization programs. Economic efficiency principles guide the framework. The chapter starts by introducing the main concepts for the analysis of infrastructure privatization, particularly the attempt to define "infrastructure," the identification of the main parties involved in the deals, their interests and how they shape the agreements; the most common contractual possibilities available for host governments; and the introduction of the trade-off between risk and return as a base for private decision-making.

Chapter 2 then presents the main financial considerations, that are new for policy makers when schemes for procuring public infrastructure existed. The main issues addressed are the constraints that the specificities of infrastructure imply for the deals between the private and public sectors, such as the consequences of requiring a substantial participation of debt and how this leads to agreements where the lenders' guarantee is the cashflow generated by the project, instead of the equity of the owners - concessionaires. Special attention is given to the role of capital markets for a successful privatization program, creating long term investment opportunities and enlarging the pool of resources available.

The second chapter ends with a presentation of the principles for risk allocation and other main aspects of road privatization programs. Political and regulatory risks, land

acquisition provisions, environmental licensing, cost overruns and minimum traffic guarantees are among the issues discussed in this section.

The third chapter analyses the Colombian Toll Road Privatization Program, which will be studied under the light of the theoretical model previously developed. For this US$ 2.3 billion program, the government expects US$ 2 billion to come from the private sector; the difference reflects resources that the government has considered necessary for the marketability of certain projects. The total infrastructure privatization program amounts to US$ 12.7 billion; US$ 9.3 billion comes from the private sector.

Since 1993, the government has awarded several toll roads to the private sector for their rehabilitation, capacity expansion, operation and maintenance. As of April 1995, 10 road concessions have been awarded, accounting for about a third of the government's goal for the period ending in 1998.

The Colombian case provides an interesting insight as it is a country where extensive economic reforms have been carried out in recent years. Recognizing that governments cannot successfully implement infrastructure privatization in the absence of an adequate economic and regulatory environment, this chapter starts with a presentation of the reforms that the government of Colombia has undertaken recently, with particular emphasis on the infrastructure sector.

The Colombian Toll Road Privatization Program is analyzed through the review of seven contracts awarded in 1994[2] and a number of informal interviews with some of the main parties involved. Using the principles established in the second chapter the main issues -- particularly those related with risk allocation -- are treated separately. In addition, topics such as bid selection criteria, mechanisms for payments resulting from the guarantees and toll levels are included. To enrich the analysis, the discussion refers to the

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[2] One of the contracts was actually signed on December 30, 1993.

Mexican and Argentinean cases. It is important to bear in mind that no single formula exists, rather it is a dynamic process that provides room for improvement as it evolves.

The thesis ends with reflections about the main challenges that the Colombian policy makers face for the success of the privatization program it has initiated.

II. THE THEORY

After an overview of the emergence of the privatization trend, it is important to gain a deeper understanding of the main issues around the involvement of the private sector in the provision of infrastructure services. Infrastructure has a set of characteristics that distinguish it from other kinds of investment. These characteristics determine not only the provision possibilities a government has, but in general the contractual schemes that are required to implement them. It is important to highlight that the success of a infrastructure privatization program depends not only in its design and implementation, but also on the suitability and attractiveness for investment of the host country.

The participation of the private sector in different activities such as financing, designing, constructing and operating the facility, brings complexity to the procurement system. Risk and credibility become central issues, in ways that governments were not traditionally used to handle. Policy makers are required to have a deep understanding of these issues to avoid the formulation of over-simplistic or inadequate schemes. A policy failing to address the interaction and the interests of the parties may fall apart, because of its lack of ability to meet the parties' needs; potential win-win solutions could be wasted.

This chapter provides the tools to understand the main issues of infrastructure privatization, and develops a framework for analysis. It also provides the principles for policy design and implementation. The framework is qualitative rather than quantitative, based on what is found in the literature to be "good practice" for privatization implementation.

The first section introduces the base knowledge. It starts with an attempt to define the term infrastructure. It then presents three different frameworks of analysis of infrastructure procurement strategies, followed by the identification of the main parties,

their interests and inter-relations. The section ends with the introduction of the concept of risk-return trade-off as the base for understanding private investment decision-making.

The second section deals with the financial aspects of privatization. With the participation of the private sector, financial considerations become a central piece for the success of the program. Infrastructure policy makers need to understand the main issues in order to produce adequate programs. This section starts with a reinterpretation of the characteristics of infrastructure from a financial perspective, to show the risk faced by the investors. The challenge of matching the time profile of debt and generated cashflow is presented, followed by the identification of the major sources of capital and the constraints they impose in shaping the deals. The section ends with a presentation of local capital markets that highlights their importance for infrastructure privatization programs.

Finally, the third section addresses risk. Risk is at the core of privatization programs. With a wider participation of the private sector, some responsibilities are redistributed and different parties face and bear different risk. The golden rule for risk allocation is that the party best able to handle it, should bear it. Risks vary according to type of project and sector; therefore, in order to apply the framework to the case study, this section will concentrate on the case of highways. In the introduction of this section, the principles of risk allocation are presented. Then, after a classification of country and project risks, the most relevant issues are treated separately. This section is complemented by a more detailed typology of risks presented in Annex 1.

2.1 WHAT DOES INFRASTRUCTURE PRIVATIZATION MEAN?

This section exposes the main definitions and issues of infrastructure provision under privatization schemes. First, although infrastructure is easier to recognize than to define, a definition will be attempted and the implication of its characteristics presented. Second, three different models that analyze the government's procurement strategies are

exposed, highlighting the aspects that each of them stresses. In addition, each of the best known contracting alternatives (e.g., BOT and BOO) is presented and mapped for each of the models.

Third, the different parties involved are identified, and finally a fourth part is included to introduce the concept of risk-return trade-off that characterizes private investment decision making. This section is crucial for the policy design of privatization programs, because it provides the grounds for the understanding of the importance and consequences of risk allocation, which will be discussed in a later section. This part allows policy makers to understand private's behavior and design policies that can add benefits to all parties.

2.1.1 Defining Infrastructure

To better understand the uniqueness of infrastructure projects in the world of investment opportunities, it is useful to model them according to five issues: long lives, capital requirements, public nature of the good, usage, and immobility and indivisibility.

Long life is normally expected from any infrastructure project. Maintenance needs to be performed periodically to increase the useful life of the facility. An airport, a road, a dam or an electric power plant is expected to be in service for periods exceeding 20 or 30 years.

Infrastructure projects have high capital requirements, that need to be fulfilled before their life-cycle starts. This means that before generating any revenue all investment is spent. Annual revenues are low when compared to capital cost. In addition, investment decisions are lumpy or subject to "technical indivisibility" (Hirschman, 1958). This implies that an expansion of capacity needs to be large, in such a way that an important part of the capacity is underutilized for a certain period of time. This characteristic is often referred

to as capitalness. One of the most important consequences of capitalness is the creation of large economies of scale for the service provision, or the so called natural monopolies.

Publicness is related to the fact that many times the service provided by the facility is considered to be a public good. A good is said to be public when it is impossible, and/or undesirable to exclude people from its use (Stiglitz, 1988). In practice it is difficult to find goods that strictly meet these two conditions. Although technological advances are allowing the exclusion of free use of some facilities -- bringing closer some infrastructure services to private goods, there still are some cases where, on economic grounds -- i.e., efficiency, it would be undesirable to charge for the service -- e.g., uncongested roads -- or when administrative expenses of fare collection would outweigh its benefits -- e.g., in some countries water supply is charged in a fixed sum, given that setting and reading the water meters is extremely costly.

Infrastructure supports many economic activities, and the services provided (e.g., water, energy or even transport) are inputs for industries across all sectors. In one way or another, these services are basic needs, or at least close substitutes. Finally, infrastructure is normally highly immobile -- i.e., it is very costly to remove it as it normally is designed to last for long periods of time -- and indivisible. Immobility varies according to the specific project, with roads, airports or hydroelectric damns in one end; and some small power generation plants or radars for aeronautical purposes closer to the other end. Site specific facilities tend to be of three types: point (e.g. railway stations), band (e.g. a road) and a combination of both which is called network infrastructure (e.g. electricity distribution).

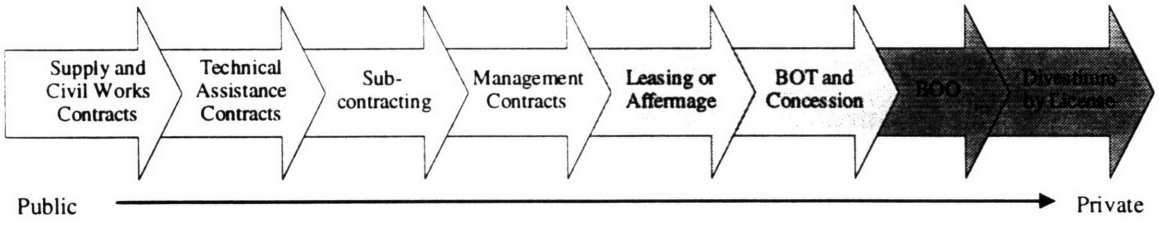
2.1.2 Spectrum for infrastructure provision

Governments have various ways to provide infrastructure, and many different options to involve the private sector in this process. Three different frameworks for

analyzing infrastructure provision will be described. First, the Guislain-Kerf (1995) analysis that exposes a continuum of options for private sector participation in the provision of infrastructure services. Second, Miller's (1995) two dimensional approach that emphasizes the integration of activities and sources of funding. Finally, the analysis presented in the World Bank Report (1994), which focuses on the operation phase. Given that these three frameworks address different aspects, they can be used simultaneously in the analysis of infrastructure provision.

Guislain-Kerf (1995) model presents an spectrum of options for infrastructure provision, according to the level of involvement of the private sector. The spectrum is divided in three main blocks. The first, describes contract opportunities where the private sector is not directly involved with the service provision (Figure 2.1). Typically, the contracts are short-termed and the involvement of the private sector is the lowest of the three blocks. Billing, parts' supply, construction works and maintenance are among the activities undertaken under these options.

Figure 2.1 Range of Infrastructure Provision Options



Source: Guislain and Kerf, 1995.

The second and the third groups correspond to concession-type schemes, where the return of the contractor is linked to performance. Leasing or Affermage, and Build-Operate-Transfer - BOT - contracts conform the second group, in which the main characteristic is that governments keep the ownership or control over the facility. The main difference between the two, is that BOTs include the construction and the financing

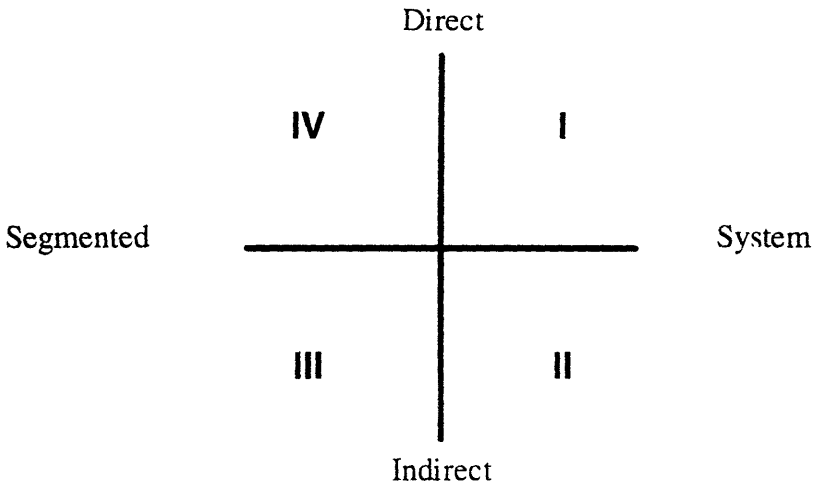
of the facility. A third possibility of this group that is not mentioned in the model is Renovate-Operate-Transfer - ROP, which is a hybrid of the affermage and the BOT. It is in this group where the Colombian road privatization program stands. Finally, the third group is characterized by the private ownership of the infrastructure facility. Build-Operate-Own - BOO - contracts are very similar to BOTs, while Divestiture by License target existing -- like leasing facilities.

Miller's model (1995) provides a framework for analysis of the government's infrastructure procurement strategy. The strategy has two dimensions (Figure 2.2). The vertical axis represents the government's participation type, direct or indirect. Funding from government's budget is a direct participation, while the use of for example, incentives or legislation to attract the private sector is considered indirect. The horizontal axis is related to the bundling of the activities required for the completion of the project (i.e., planning, design, construction, operation and/or maintenance). Two options are available, either separating the activities to create a Segmented procurement process, or to award all the activities in the same package (System).

Using Miller's framework, the top part of the figure corresponds to projects directly funded by the government. Quadrant IV includes the cases like when the design is contracted separately and to different firms from the construction work. Quadrant I integrates further the activities, like for example in a Design-Build and Operate contract - DBO. The bottom accounts for the projects with a wider participation of the private sector, particularly as source of funding. Depending on the level of integration of the activities, projects can be situated in either quadrant II or III. Contracts can take different forms, of which the more commons are BOT, BOO, BLT and ROT. This kind of contracts requires a long and complex process of project preparation and negotiations, when compared to traditional tendering[3].

[3] By traditional tendering is understood a bidding process where firms are only competing for construction of the facility, and the financing is provided by the government.

Figure 2.2 Miller's Procurement Analysis Model



Source: Miller, 1995

Finally, The World Bank (1994) proposes a different classification that emphasizes more the operation. It defines four different options for infrastructure ownership and provision. The first option is public ownership and operation by a governmental agency. To this category belong the parastatal monopolies that were common in developing countries for infrastructure provision. The second option is public ownership with private operation. This option is used when for strategic reasons or natural monopoly characteristics, the government wants to maintain the control of the existing or new facility. Water supply, railroads or roads are typical cases of this scheme, where the private party normally assumes the commercial risk of operation, and shares with the government the risk of investment. The third option, private ownership and operation, is best suited for situations were the service can be provided competitively (e.g., some telecommunication services). In this case, the private sector assumes both the commercial risk of operation and the investment risk. Finally, community and user provision can be used for local and small-scale services.

2.1.3 The Actors

Identifying all the parties is important to understand the relations that arise in privatization programs. From a policy making perspective, being aware of the different actors, their roles, responsibilities and interests is crucial to implement win-win schemes. Failing to understand the inter-relation between parties may result in the design of oversimplistic policies, or policies with the wrong incentives that may lead the process to failure. When schemes are changed, new issues arise, procedures are defined and parties have to get used to them. The main changes resulting from shifting away from traditional tendering will be discussed after identifying the parties.

The main parties involved are the host government, the concessionaire, the construction firms or the equipment providers, the fund providers and the users of the services. Sometimes one person or firm belongs to more than one group.

There are different dimensions of the host government. The most obvious, corresponds to the geographic area where the project will be constructed, or where the services will be provided. Another dimension is that of the granting authority. Even if there is a single granting authority, the picture can be confusing as many agencies -- often with conflicting objectives -- make part of the project in one way or another. For instance, the roles of the granting authority and the environmental agency are in conflict, in the sense that the former's objective is the facility construction, while the latter must issue licenses to allow the project to be undertaken.

The second main actor is the private concessionaire or sponsor. In some cases the private party is the actual owner of the project, in other cases the host government maintains the ownership of the assets. The activities of the concessionaire vary according to the kind of contract, but they may include financing, designing, constructing and operating the project. The sponsor is normally a consortium formed by a number of investors that are willing to share the risk of the venture, and that can be as diverse as

construction firms, financial institutions, or any individual shareholder (see Channel Tunnel Case - Box 2.1). As investors, they are interested in the return they can get from the project.

The case of construction firms is somehow mixed, as their participation as equity holders may respond to different circumstances. It can be a way of securing their participation in the construction of the facility, which is ultimately their line of expertise and business, or it may be a requirement of the other actors, as an incentive mechanism to make sure that the firm will do its best as it has a stake in the project.

Funds may come from different sources, mainly equity, debt and grants. Although they all benefit from the success of the project, each group is involved differently. Equity holders have already been discussed. Debt providers, could be divided into commercial banks and bond holders. Bond holders are investors, but they will not share the upside opportunities of the project, however if the sponsor bankrupts they can loose their investment. Commercial banks provide a large part of the resources and their participation is in their main line of business.

Finally, the users -- not normally considered a crucial party during the preparation of the project, have their interests represented by the host government.

To illustrate the changing relations between the parties, a rough comparison between a traditional tendering process and a BOT project is useful. For the former, the government organizes a bidding process, from which one firm is selected to construct the facility, and the funds are provided by the government according to a set of rules fixed in the contract. The rules can vary widely according to the specific contract ranging from fixed price to unit prices contracts. It is common to include a draft copy of the contract in the bidding documents, in such a way that when the contract is awarded there is no much room for negotiation.

BOX 2.1 THE CHANNEL TUNNEL.

"The tunnel is one of the great things we can do together" Napoleon III (1856).

"Tell the French engineer that if he can accomplish it I will give him my blessing in my own name and in the name of all the ladies in England" Queen Victoria (1856).

"What! You ask us to contribute to a work the object of which is to shorten a distance we already find too short" Lord Palmerston (1856).

The idea of a fixed link between England and France can be traced at least to 1856, as a project of Napoleon III. Since then, several schemes have been proposed but never undertaken. Finally in 1985 the French and British governments invited proposals from the private sector for the construction, financing and operating the project (without any government subsidies). The design was awarded to a French-British firm. Five important British and French banks (Banque Nationale de Paris, Crédit Lyonnais, Banque Indosuez, National Westminster and Midland), and 10 construction companies made part of the initial consortium (owner), for a 55 year concession. The Cost of the project at that time was estimated in around £ 5 billion. In addition, to cover exchange rate risk, a £ 1 billion facility from the European Investment Bank was created.

Financing used equity and debt. Equity was planned to be raised in three installments or trenches (Equity I, II and III). Debt was in the form of a syndicated loan, where more than 200 worldwide banks participated. Equity and loans were planned in a way to support each other. The loan agreement was signed after the first and second installments of equity were raised, so there would be confidence from the banks that the project would be properly capitalized. On the other hand, the fact that loans were signed before three quarters of the equity was raised (Equity III), would give confidence to investors that the project would have sufficient funds for its development.

Equity I was raised in September 86, for an amount of £ 46 million, out of the 1 billion pounds that was planned. The following month, October 86, a further £ 206 million in shares were sold (Equity II). However, the important part of the financing came in 1987, when £ 5 billion of syndicated loan was arranged, and £ 770 million from Equity III were raised. The fact that Equity III was in the market just two weeks after Black Monday, when the stock market crashed in October 1987, gave confidence about the project. The loan, reserved 20% of the credit as a provision for cost overruns or unexpected higher inflation.

Soon after the project started, the consortium realized that the construction costs were higher than expected (in 1990 it was estimated at £7.6 billion, a 46% increase from 1987's estimates), and that the conditions were too favorable for the contractors -TML. The consortium needed to increase their debt, but banks were reluctant even to let them use the already approved £ 5 billion, until the contract was renegotiated ("... to ensure a more equable distribution of the cost overruns between the company and its contractors." The

Financial Times, 1994). In February 22, 1990, the new contract with TML was signed, and the negotiation with the banks started.

The consortium wanted a £ 2 billion loan, before obtaining £ 566 from rights of issue. However the banks were reluctant to give the loan, because of a recession in the banking industry, that made credit difficult even for strong projects. At that time, only around £ 1 billion (20%) of the facility was disbursed, and some banks took the position that it would be less risky to loose this amount than to face the risk of project bankruptcy once the whole had been used. This position was mainly adopted by Japanese banks, who have originally joined the syndicate in the belief that if the project went wrong, the British and French governments would back it up. At this point, Mrs. Thatcher decided to send a letter to the Japanese prime Minister, asking for his intermediation so that the Japanese banks wouldn't block the loan's extension.

The final agreement was a total extension of £ 1.8 billion to the syndicated loan, and the consortium raised a further £ 300 million through a loan from the European Investment Bank. In 1994, new resources were required. This time it was not only due to cost overruns, but also to time overruns that delayed the beginning of operations, and therefore of their cashflow generation. As of May 1994, the plan was to extend the credit facility another £ 650 million, and to issue an equal amount in senior debt.

In 1995, the loan refinancing using other debt instruments was expected to start, in order to match it with the project's long-term revenue structure. The income was secured by the British and French railroad companies (state-owned), which agreed to pay 60% of the projected tunnel traffic during the first 12 years. This corresponds to roughly 40% of the operating revenues of the consortium.

FINANCING STRUCTURE

SOURCE OF FUNDING	AMOUNT
Equity I (Sept 86)	£ 46 million
Equity II (Oct. 86)	£ 206 million
Syndicated Loan (87)	£ 5 billion
Equity III (87)	£ 770 million
Syndicate Loan Extension (90)	£ 1.8 billion
EIB Loan (90)	£ 300 million
Debt Issue	£ 566 million
Plan as of May 1994:	
Syndicate Loan Extension	£ 650 million
Senior Debt Issue	£ 650 million

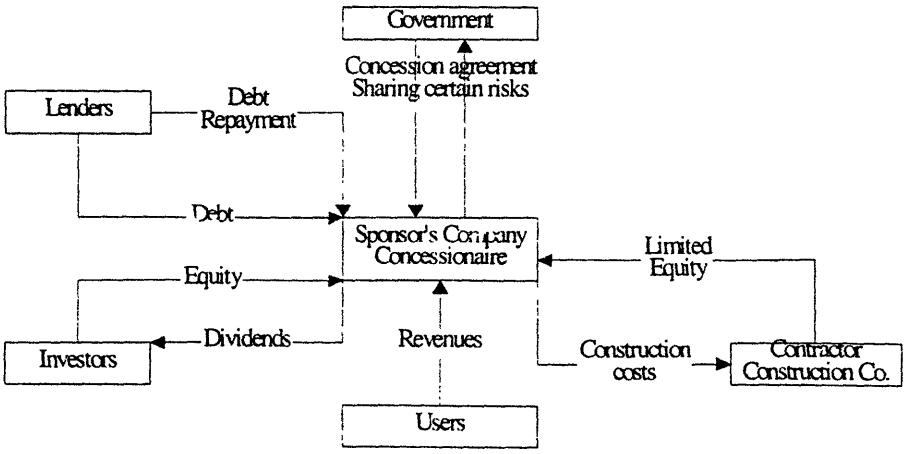
However, under concession contracts (e.g., Build, Operate and Transfer - BOT) there are at least three sets of negotiations. The first negotiation is the creation of the firm that will be the "owner of the project" during the period of concession, referred to as the

sponsor. The rules and the responsibilities of each of the consortium firms are set, particularly those regarding risk allocation.

At the end of the bidding process, negotiations between the sponsor and the host government start, in a similar fashion to that of the traditional tendering. In the final stage sponsor and lenders, start the negotiations that lead to the financial closure. This includes the agreements over the conditions of the loans, and a number of conditionalities and structures designed to protect the interests of the parties (e.g., priority of claim in case of bankruptcy, or rules about supplementary fund raising).

Because of the multiplicity of parties involved in the development of the project, the structure of the resulting deals is very complex (Figure 2.3) and time consuming -- the Hub power project in Pakistan may be an extreme example but it shows how time consuming these processes are: it took 8 years to prepare. In order to provide security to the lenders, complicated contractual structures are developed, even when government involvement is marginal, as in the case in the Mamonal Power Plant in Colombia (Box 2.2). In the case of the channel tunnel, the syndicate of banks was up to 200, and at least 80% of them had to approve any fund raising.

Figure 2.3 Structure of Relations in BOT Schemes



Source: Walker and Smith, 1995

BOX 2.2 MAMONAL COLOMBIA - GAS POWERED ELECTRIC UTILITY.

The Mamonal project is the construction of a power generation plant located in the industrial area of Cartagena, one of the Colombian ports in the Caribbean. This combined cycle plant that uses natural gas, has a capacity of 100 MW, and was the first non recourse project financing in Colombia (i.e., the financing was based on the cashflow of the project rather than the equity of the sponsor).

This project began as a private initiative as a result of high electricity fares. The petition was submitted to the government before specific legislation on the participation of the private sector in the generation of electricity existed. However, no specific prohibition existed either. In 1992, after a long low rain season, Colombia went into a brownout. During 13 months, electricity was cut for about 8 hours a day for residential and commercial users, in order to reduce overall electricity demand in about 10% to 15%. The measure was designed to protect the industrial users as much as possible. Although the Mamonal project was to be used by a few industries, the situation made that the government give priority to the requirements of the project.

The project comprises a complex arrangement of different agreements. The resulting structure arose partly from conditionalities imposed by lenders, designed to protect their loans and trying to require a good operation of the utility:

A group of local industrialists got together and formed a firm called Proelectrica (the owner of the project), which was in charge of getting a lease for the facility from Interamerican Energy Leasing Company (IELC), for a period of 14 years of energy supply. IELC contracted a Colombian-American consortium for the construction of the plant.

To operate the plant, K&M, a parent company of IELC, was created. K&M signed a Management, Operation and Maintenance contract (MOM) with Proelectrica. However, the lender (Chase Manhattan Bank), considered that the operation had to be in charge of a firm with experience in the field. Therefore a firm constituted by the plant builders was created to manage the operation.

To guarantee an income to the facility, local industries and Proelectrica (the owner) went into a Power Purchase Agreement (PPA). A two part tariff and a minimum purchase was agreed in the PPA.

To secure the transmission of the electricity, an agreement over the access to the lines was required. The local firm, Electribol, signed an agreement in which Proelectrica was allowed to use the transmission lines for the electricity they produced, Electribol acted as a back-up service providing energy when the facility went out of line, and Proelectrica had to sell their excess production to Electribol.

Natural gas provision had to be ensured. Proelectrica signed a long-term provision agreement with the Ecopetrol, the national agency in charge of managing oil resources. This was the first long-term gas provision agreement signed by Ecopetrol.

The Chase Manhattan Bank provided US$ 57 millions to IELC (US$ 56 for the construction and US$ 1 million for working capital). IELC equity's was US$ 14 million.

In order to manage the cashflow, a trust agreement with a local bank was arranged. The trust must use the resources from the cashflow in the following order. First, pay K&M, so that the facility could continue to operate; second, pay to the IELC the agreed cost of the lease, through a second trust that had first to reimburse the loans from the Chase Manhattan Bank; and third, if any funds were still left, they should be given to Proelectrica, as profit from their utility.

The Leasing agreement was signed on November 1992, the financial closure on January 28, 1993; and operation of phase I (without the second cycle) started in the second half of the same year.

2.1.4 Risk-return tradeoff and its relevance for infrastructure privatization

Any private party willing to take part of the project has to evaluate it in order decide whether or not to participate. A central issue in their assessment is the exposure to risk, and the expected return. This section provides the theoretical framework to understand the fundamental trade-off that firms face during the decision making process, and the implications for infrastructure privatization. For the Colombian analysis this concept will be repeatedly used.

At risk capital, or the recognition of a trade-off between risk and return, is the foundation of modern corporate finance. As a condition for markets to be efficient, different returns can only be understood in terms of risk. Otherwise, the rational investor would rush to invest in opportunities with the highest return, pushing up prices until returns for all investments are equal. In this context, risk is explained as the variance from and the correlation of an asset with the overall market behavior. In other words, it is not enough to understand the fluctuations around the market, it is important to see if they move in the same or in opposite directions (e.g. when there is a recession, shares of some industries go down while others go up) and their magnitude. This can be seen as an elasticity of the asset with respect to market behavior.

For example, in the stock market, the way the model works is based on historical data of the market and each of the stocks. For operational reasons, the market's behavior can be based on the performance of only a specific set of shares, like the S&P 500 -- an index that includes 500 stocks published by Standards and Poors. The Capital Asset Pricing Model - CAPM - is an investment tool that recognizes this trade-off, and provides a useful guide to all kinds of investors (i.e. from highly risk averse to risk pro) to decide about the composition of their own portfolio.

With this theory in mind, the next stage is to understand its consequences for infrastructure provision under privatization schemes. The first thing that must be brought to attention is that the theory assumes full information, and that there are many participants that share it. This might not be the case for infrastructure projects, as commonly there are few participants and the information or knowledge of the project can vary. In this way risk can be perceived differently by each of the parties. From a policy maker viewpoint, it is important to understand that risk is perceived and that it varies across potential bidders.

The main implication of the theory, is that it provides grounds for an active participation of the host government in evaluating which actions can be taken to reduce the overall risk of the project, so that investors would require a lower rate of return. Actions can take the form of information provision and risk allocation rules. For the former, the decisions may include showing its commitment with the process, gathering and releasing as much information about the project as possible, being aware of the importance of demonstration effect (positive or negative) in the future development of the program, creating an overall environment of transparency for the bidding process, and being extremely careful in the preparation of the bidding documents. As it will be shown, the quality of the bidding documents is a major concern for the Colombian case. One of the main aspects in this case is the credibility of the host government and its agencies; therefore information release with a signaling effect can be used as a way of reducing uncertainty. The latter, defining clear and sound risk allocation rules will be addressed in a later section.

2.2 FINANCIAL CONSIDERATIONS

One of the key areas in which governments wants the private sector to be involved is the financing of the projects. The main reason is the additional investment resources that will generate infrastructure services that otherwise would be delayed. Therefore,

policy makers must be aware and understand the main issues of the financial aspects of privatizing infrastructure, to be able to design adequate policies, responsive to the private needs.

This section presents the main issues around the financing of infrastructure. The first part, re-interprets the characteristics of infrastructure from a financial perspective. This perspective is introduced to show the sources of risk of infrastructure ventures, and some of the key concerns of fund providers. Matching the time profiles of debt and income produced by the facility is one of the main challenges for the infrastructure sector with privatization. This issue is presented in the second part. Thirdly, the main sources of capital for financing the projects are identified and described, highlighting the chief constraints and potentials of each of the sources. An application of how sources respond to risk profile and the amount of capital required according to the phases of the project is presented.

Finally, the fourth part explains the role that local capital markets can play in infrastructure privatization. In addition, it presents the main problems that developing countries face for their development.

2.2.1 Why infrastructure is financially risky?

The importance of recognizing the financial risk in infrastructure venture is to be able to understand which are the stakes at play, and how the parties will interrelate to shape the deals. Restating the characteristics of infrastructure, six main aspects explain why infrastructure ventures are in essence risky (Chandavarkar 1994 and IFC, 1994). First, capital costs are high when compared to the maintenance and operation requirements. Second, infrastructure projects require large, lumpy amounts of capital, therefore considerable sunk costs exist because income cannot be realized until projects become operational. Third, entry and exit are very costly, reducing the contestability of

the services; or similarly, these projects are difficult to trade. Fourth, debt maturities tend to be long, and debt-equity ratios are high. Fifth, the tariffs of the services are subject to political pressures, and therefore the private parties fear changes that alter their profitability. Finally, the income generated by the services is normally in local currency, increasing risks related with the fluctuation of foreign exchange rates.

These characteristics stand as evidence of the importance of the role played by the lenders in shaping the structure of the projects. First, as debt-equity ratios are high, lenders are more exposed to risk than in other kind of projects. In the experience of the International Finance Corporation of the World Bank Group - IFC, a greenfield project requires over 2/3 to come from debt. Although debt always accounts for a large part of the financing, it varies across sectors. For instance, in a sample of projects in which the IFC has been involved, power projects require lager debt-equity ratios (68-32) than telecommunication ones (50-50) (IFC, 94). Second, as debt is so high, the project loans are not based on the equity of the sponsor, but rather on the cashflow generated by the project during its operating life. In other words, debt repayment depends solely on the cashflow that can be generated by the operation of the project, instead of the equity of the sponsor. In project finance jargon, this is known as non-recourse, limited recourse or off-balance sheet financing. Third, because of intensive capital requirements, an infrastructure project might be the single project that has the largest loan, and therefore lenders have the incentive of a heavy involvement, and of taking part in some decisions.

2.2.2 Matching funding and project flows

Although the basis for understanding this issue has already been stated, the constraints it imposes and the risks created, makes it worth to be mentioned under a different heading. Matching funding is one of the main challenges for infrastructure privatization in developing countries. The main constraint is that while concession periods can easily exceed 10 or 15 years, debt is available for much shorter periods of time.

Therefore, it is necessary to use funds with different time profiles than the income generated, and refinancing of the initial debt is required. Refinancing generates risk as the future market conditions are uncertain, particularly when debt re-issuing takes place.

An interesting example is Serial Bonds, which are bonds that have to be re-issued several times before their final maturity, constrained by the capital market's characteristics (see Hungary M1-M15 toll road case - Box 2.3).

A potential problem that arises from the inability of matching funds is a liquidity crisis of the sponsor, which will be treated in more detail when analyzing the Colombian case.

2.2.3 Sources of funding

There are several sources of funding, each offering different opportunities and imposing different constraints on the projects: equity from the sponsor, debt and grants. The importance of each of them depends on the individual characteristics of the project and the financial instruments available.

Direct Grants are not always available in the financing of the works. Sometimes they are disguised by the provision of other works that will support the success of the project. Another mechanism through which grants are given is through interest-free or subsidized interest government loans, like in the Sydney Harbor Tunnel, for which the government made a non-indexed (for inflation), interest free loan for A$250 million.

BOX 2.3 Hungary M1 - M15 Toll Road.

The M1-M15 toll road is a 35.4 mile remainder of the link between Budapest and the frontiers of Austria and the Czech Republic, which is the first Eastern Europe BOT project. It is as well the first involvement of the European Bank for Reconstruction and Development -EBRD- in financing a highway project. This project that was linking Eastern and Western Europe was considered for 100% financing from the EBRD. The project itself, is a 26.4 mile improvement from Gyor to the border with Austria (that completes a 162 mile highway between Vienna and Budapest), and a branch of 9 miles to the Czech border.

The project was awarded in three rounds. In 1991 the Bureau for Motorways in Concession had received 10 prequalifications, which were downsized to five firms. Later, in August 1992, four out of the five prequalified groups submitted bids. In December, the negotiations with the two finalists started, and finally the 35 years concession was awarded. The EBRD joined the process after the contract was awarded, but requested the reopening of negotiations, because it found that many clauses needed changes. Later, 1993 traffic forecasts were found to be overoptimistic, and the decision to reduce the highway from 4 to 2 lanes was made.

The financial package signed was arranged by BNP (who previously was a shareholder) and EBRD, and was for approximately US$ 325 million. It included four local debt instruments for a total of 12 billion forints (3 billion each) which corresponds to about US$ 120 million. The local debt instruments were: a public bond issue by EBRD; a private placement of bonds with institutional investors by the concession company ELKMA (Elso Magyar Koncesszios Autopalya Rt.); a public issue of "serial" bonds by ELKMA (because of the short term of the Hungarian capital market, these bonds are planned to be redeemed and reissued several times according to the current market conditions, with a final maturity in 2008); a loan maturing in 2008. Equity was 6.5 billion forints (including government grants of about 1 billion, in the form of land).

Foreign loans accounted for 139 millions of ECU (around US$ 170 million). The EBRD made a loan for 36 millions of ECU, with a 13.26 million standby facility. BNP and the EBRD prepared another loan for 103 million ECU, with a 36.74 million standby.

FINANCE STRUCTURE

SOURCE OF FUNDS	AMOUNT
Equity	**Forints 6.5 billions**
Debt	
Local Debt	Forints 120 billion
Public Bond Issue by EBRD	Forints 30 billions
Private Placement with institutional invest.	Forints 30 billions
Public issue of serial bonds[4]	Forints 30 billions
Loan from OKHB	Forints 30 billions
Foreign Debt	ECU 139 million
A-Loan from EBRD ECU	36 millions (with a ECU 13.26 m. standby facility)
B-Loan from BNP-EBRD ECU facility)	103 millions (with a ECU 36.74 m. standby

[4] Serial bonds with initial maturity of 2 years, and then according to market. Final maturity 2008.

There are different ways of raising equity[5], which can be used according to the amount required. The sponsor or concessionaire can be a private company that raises capital through its owners. Alternatively, the sponsor could be a public firm[6] executing public share placements in the market to raise equity funds. In recent years, the development of private Infrastructure Funds has been a way of raising equity from abroad. In many cases, these funds are temporary, while the facility is under their ownership. Most of the existent Funds are either sector or region specific, and a few of them are both. Examples are the Asian Infrastructure Fund, Scudder Latin American Trust for Independent Power and Central Europe Telecom Investment.

Similarly, debt can be raised from a variety of instruments, for example: direct or syndicated loans from commercial banks or investment banks, loans from suppliers, loans from multilateral agencies, loans from export-import banks (EXIM), bonds, serial bonds and public infrastructure funds among others. Not all instruments are always available, nor are the available instruments always used.

An interesting implication of the matching between source of funds, risk and capital required is observed in the evolution of the project. Three different phases can be linked to different kinds of financing needs (IFC, 94):

1. Development phase. Very high risk. Firms might not be selected in the bidding process, or be able to mobilize financing after being awarded the contract. Therefore this phase is normally financed through equity. Low levels of resources are required.

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[5] Equity holders share the benefits from the project, meaning that their return is not fixed as in a bond, and that if the project goes well they can get a large return, but if the project goes bankrupt, they will be paid after all debtors, according to the claim priority of their shares (i.e. preferred or common equity).

[6] In this case, the term public is related to the way the shares are traded, and does not mean a firm owned by the government. A firm is called public when has listed its shares in some stock market, so they can be traded publicly.

2. Construction phase. High risk. Many sources of risk. Requires a high level of resources, therefore equity is not normally enough. A combination of subordinated debt, senior debt and guarantees is commonly used.

3. Operation phase. Lower risk. If the repayment schedule in the financial structure does not match with project cashflow, then refinancing through bond emissions might be possible.

2.2.4 The Role of Local Capital Markets

As shown above, there are many different instruments used to raise funds, most of them from capital markets[7]. This highlights the crucial role that capital markets play, or should play, in supporting the development of infrastructure privatization programs.

Risk is a key issue when understanding investments and capital markets. At risk capital, or the recognition of a trade-off between risk and return, explains why there are different returns available in the market for securities with the same maturity. Capital markets should therefore offer a variety of investment opportunities that suit the risk profile and the time horizon of potential investors.

Local capital markets in developing countries are not mature enough to facilitate the financing of infrastructure projects. They are deficient in two different aspects: first, capital markets are small with respect to the level of investment required, and second, there is no long-term market established. There are several reasons why such long-term markets do not exists (in Latin America "most loans and securities having a 90- to 180-day maturity" -Holden, 1995), like high and uncertain inflation, exchange rate risk, and political uncertainty among others. In addition, in developing economies, the capital requirements of infrastructure projects can be higher than the market can handle, if investors were to diversify their portfolios to mitigate risk.

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[7] Capital markets are composed by the money market, bond market and stock exchange.

It is fair to ask therefore, what can be the role of local capital markets, and what is the importance of their development, especially when well developed international capital markets exist and have the characteristics required. There are at least three good reasons that explain it. The first one is rather straightforward and refers to the fact that by having access to a new local well functioning market, countries not only increase the pool of resources available but find them at home. Secondly, it is reasonable to assume that foreign investors will normally demand a higher return than local ones, otherwise there would be no reason for them to invest abroad, where necessarily they won't have as much information to react fast enough in adverse situations. Furthermore, relying only on foreign funds will increase the cost of capital.

Thirdly, it is important to realize that with the private involvement in financing infrastructure, the resources raised in capital markets from bonds or share emissions are publicly traded in the stock. When these securities are held by foreign investors, the resources are classified as short-term foreign funds. This is because the owner can easily get rid of them only by phoning the trader, and then take the money out of the country. This is what happened in Mexico, where in a few days a substantial amount of resources left the country. Heavily relying in short-term foreign funds is not desirable, as they can move easily and just a rumor can rush the investors to leave. This can lead to a deficit in the capital account, contracting the county's foreign reserves, or in extreme cases to a capital account crisis. This last issue is specially relevant for infrastructure given the large amounts of resources involved.

Another way to see the potential of local capital markets (even if it might not be a causal relation), is a finding by the International Finance Corporation - IFC - of a positive relation between the level of development of local capital markets and programs in infrastructure concessions.

It is important to point out that although infrastructure privatization programs are not the driving force behind the local capital markets development, they can benefit greatly from a well functioning one. Countries have to undertake different kinds of measures to achieve this objective. For instance, to facilitate the demand of long-term securities, governments have to undertake social reforms, particularly in the labor market. The resulting pension funds have a fairly precise idea of when their obligations have to be met. Given the essence of their business, a substantial part of their obligations are in the long-run.

It is important as well to have many players, either buying and issuing securities, to guarantee that none of them has market power. To ensure this, governments have to design a tax regulation that does not penalize saving through investing in companies, to encourage more people to participate. In order to motivate the companies to issue stock, governments can reduce the level of "absolute ownership", so that the original owners can keep total control of the company with a lower share.

2.3 ALLOCATING AND MANAGING RISK

> "The most significant characteristic of project finance is the art of minimizing and apportioning risk among the various participants" (Traverso)

Risk always exists when undertaking any sort of project, however it varies from project to project and from sector to sector. For infrastructure privatization, where projects are normally large and complex, risk plays a central role. Little can be done about risks, however the task of allocating them properly reduces the overall risk of the project (Beidleman et al, 1990). Therefore, although the principles are always the same, this chapter concentrates on the highway case.

The main issues should be considered when analyzing risk are: first, the level of riskiness of each of the potential sources of risk. This step is important because it allows

the participants to direct their effort, and spend more time in the critical cases. As risk varies across projects and sectors, this exercise should be made in a case by case fashion. Second, identification of the party that is in the best position to handle each of the risks. Finally, risks should be "allocated, priced or mitigated between the parties" (IFC, 94).

Three further considerations must be highlighted. Risks should be faced from the beginning, risk is perceived differently by each party, and there are grounds for policy makers' intervention. The importance of identifying and allocating the risks from the beginning should be clear, otherwise if a risk that has not been properly allocated increases the exposure of the private participant, it will be reflected one way or another in the price of the project -- e.g., via toll level or concession length. If, on the other hand, the risk was not previously identified, it is a potential source of future conflict. The potential of future conflict is one of the issues that is presented more extensively in the Colombian case.

Policy makers have three main ways to intervene. First, they can create an enabling environment. In many cases actions are taken outside the field of infrastructure and therefore little can be done by sectorial policy makers. The second way is through the provision of information to reduce part of the uncertainty of the potential investors. Finally, by deciding when the government should award a guarantee in order to attract investors that otherwise would not be interested. In both cases, credibility is an asset for the host government as it reduces the risk perceived by the privates lowering their expected return.

In sum, the "golden rule" of risk allocation is that the party that is best able to manage a particular risk, should bear it. The chosen party can benefit from good management and, will lose from mismanagement. For example, risks that are commercial in nature should be borne by the private sector. The way risk is allocated is through contractual agreements, that range from the inclusion of a clause in the main contract, to the use of third parties that manage cashflows with clear rules for distribution of income

(see Colombia Mamonal Case - Box 2.2). It is common to construct a matrix for risk allocation indicating the participants and the kind of risks included (Table 2.1).

There are several sources of risk, which are commonly divided in two groups: country risk and project risk. The most important considerations will be treated in more detail, however a more complete inventory of risk and its analysis is presented in Annex 1.

Table 2.1 Typical Allocation of Risks among Participants.

Type of Risk	Deve-lopers	Contrac-tors	Resource Owners	Lenders	Suppliers	Consumers	Financial Advisors	Gov't Bodies	Others (1)
Technology			X						
Credit	X	X	X	X					
Bid		X					X		
Completion		X			X				
Cost Overrun		X	X						
Performance	X	X			X				
Political	X	X	X					X	X
Liability								X	X
Equity	X	X	X						
Resale									
Off-take					X	X			

(1): International Finance Corporation (IFC), Overseas Private Investment Corporation (OPIC), Insurance Companies and Third Party Investors.
Source: Extracted from "On Allocating Risk: The Essence of Project Finance". (Beidleman et al , 1990)

2.3.1 Country Risk

Country risk takes into consideration variables that affect the project but that do not depend at all on the concessionaire's performance, and that normally can be influenced by governmental policies. Country risk can be further subdivided in two groups: political or regulatory (e.g., political instability, expropriation, new legislation) and economic, commercial or market (e.g. inflation, exchange rates, demand fluctuations).

Credibility at all levels is a key issue. At the country's level, it is important for the concessionaire to be aware of macroeconomic stability, currency availability and convertibility. The concessionaire's perception is significant given that it will determine their willingness to assume some risks, that may otherwise be viewed as government's responsibility.

In general, country issues are not the most relevant for the Colombian case as it will be shown in the next chapter. The following are examples of what are considered to be the main sources of country risk that may have substantial impact in privatization projects.

Inflation

Inflation is a commercial risk. In countries were inflation is low or with little volatility, the private sector may be willing to bear this risk. However, in the developing world, where inflation records may not be so good, and where some countries have gone through periods of hyperinflation, governments are willing to index tolls through the contracts, in such a way that the private party can update the tolls without going through bureaucratic processes. Because of the close relation between fiscal policy and inflation, the government plays an active role in inflation , and therefore it is common to index tolls. Not providing such a clause could imply a substantial increase in the return demanded by the private sector, and a decrease of potential investors.

Two main problems are related to inflation in privatization programs. In both cases lenders play a major role. The first case, corresponds to the ability of indexing tolls to ensure that the concessionaire will be in a position to payback the debt -- loans or securities. If tolls are not indexed, lenders may consider that the project is too risky and may be reluctant to provide resources. This is particularly relevant because of the long term nature of the projects. The second problem is related to the uncertainty of the cost of the project -- in nominal terms -- caused by inflation. For this kind of risk the concessionaire is not covered -- except for additional work, but because the expected relatively short construction period, lenders may create provisions within their credit lines (see Channel Tunnel case - Box 2.1).

Foreign Exchange or Currency Devaluation

This risk is of considerable importance for developing countries as it has been suggested to restraint long-term foreign investment. In the case of Mexico, the toll was pegged only to inflation and was not tied to currency fluctuations. January 1995's happenings in this country might remind foreign investors to be more careful about their exposure to those long-term risks, or to include higher risk premium in future contracts.

Apart from pegging tariffs to devaluation, it is possible to hedge against this kind of risks with the use of financial instruments, such as swaps or options. However, they might not exist for the country's currency and if they do, the maturities available can be too short (less than 2 years). In general, normal fluctuations of the currency are in nature commercial risks and therefore should be borne by the private sector. If the private sector is concerned about large differences between depreciation and inflation because of exogenous shocks, a clause fixing a maximum difference could be established. Government and concessionaire must agree on this value, which will reflect a maximum level of commercial risk the private sector is ready to bear for totally unforeseen situations. Whenever the difference is larger than the agreed value, one of the parties (private sector or host government) will be compensated. There are still two great difficulties to be solved. One, regarding the fact that fixing the value might be difficult, especially given that the private sector would have interest in setting it as low as possible, when in fact it should be relatively high, as it should reflect only rare exogenous events and not normal fluctuations. The second, is related with foreign investment being in different currencies that can fluctuate with respect to each other, making more difficult to workout a compensation formula. Given the unpredictability of exchange rate variations, and the cost of time delays, standby credit facilities to the sponsor can be used to ensure that capital shortage will not occur during construction, avoiding some disruptions.

A similar instrument to the proposed here was used in the Malaysia's North-South highway, the government accepted to back the risk if exchange rates dropped more than 15% of the initial ones (Walker and Smith, 1995). Other mechanisms can be used, and

vary according to the facility and circumstances. For instance, in energy it is common to index part of the tariff to foreign currency.

Foreign currency availability and convertibility

In an ideal situation a country should have a sound economic environment and no past record of foreign currency availability and convertibility problems. However, when this is not possible, credibility and confidence can be provided by using other mechanisms. Strong commitment with the process or including the Ministry of Finance as part of the contract are options that the country can use to reduce this kind of risk. The contracts can contain clauses that determine solution mechanisms where the concessionaire can be directly involved with the Ministry of Finance, avoiding bureaucratic and inefficient intermediation of other agencies -- i.e., Ministry of Public Works, or the agency in charge of the concession.

Political and Regulatory Risk

Change in policies can affect greatly the performance of a project, particularly when the contracts are awarded for long periods of time. New legislation that alters the projected cashflow (e.g., tax reforms) -- which is the base of the agreement -- are feared. Extreme cases like expropriation are cause of concern for concessionaires, particularly in countries where this practice has taken place. If governments want to attract foreign investors, they should evaluate carefully their situation with respect to this issues and take corrective actions.

Risk from new legislation or changes in government policy that alter the profitability of the deal, must be faced during the negotiation, in order to define which changes are acceptable, and the appropriate mechanism of compensation. The direct involvement of the Ministry of Finance in the contract, can provide great credibility when any unexpected situation of payments to the concessionaire arises. Its participation can help as it reduces the risk of delays in the payments, because less bureaucratic procedures may be required.

Regarding expropriation, concessionaires can get an insurance from MIGA[8], but at a cost, which will depend on the country's record, and can be insufficient for large projects. Alternatively, the government can establish a standby credit that would pay immediately the concessionaire, whenever the eventuality happened. This kind of instrument can be managed by an international agency, like for example the World Bank. Governments might find the insurance more appealing, given that a standby credit might require debate in Congress and might reduce the credit availability for other kind of investment. However as pointed out, the insurance might not be suitable for the project.

Dispute Resolution System

Coming to an agreement over the way each kind of dispute will be handled and defining clear procedures will avoid costly and unnecessary delays. The dispute resolution system poses a main concern for foreign participants. They may be unfamiliar with the local legal system, and fear an unfair trial. Therefore, it has become common to ask for internationally accepted dispute resolution proceedings. However, not every dispute is worth taking to court, so the contract should include very clear procedures to solve conflicts, like for instance setting a committee representing both parties, clearly indicating deadlines and making sure that the result is binding. A further option is a third party binding arbitration.

Demand

Although demand is of commercial nature, the risk associated may be too large for the private sector to bear. In such cases the government may decide to share the risk. Important decisions must be made to assess whether or not and to which extent the government should award a demand guarantee. In principle, the private sector could bear this risk but the return demanded could be too high -- because of increased risk, to a point where it would be better for the government to provide the facilities. The increased risk

[8] Multilateral Investment Guarantee Agency, which is part of the World Bank Group.

would reduce the pool of potential investors, and if the increase is too large no investors may be willing to participate.

An important consideration, is that in the absence of the private sector, the government would become the sole bearer of this risk -- through reduced economic benefits of lower than expected traffic. Built-in incentives for concessionaire's performance during operation should be included if the government decides to award the guarantee.

It is noteworthy that during the decision period, demand is based on the traffic projections, therefore special attention should be dedicated to their preparation.

2.3.2 Project Risk.

Project risk can be subdivided into three parts according to the project's phases: planning or preparation, construction and operation. The main issues during the planning/preparation phase are related to the design and the changes that might occur, the risk associated with the technology chosen, license procurement -- particularly for environmental permits and bid awarding. During the construction phase, the issues are more diverse, including the completion of the works on time and budget, how to define and solve force majeure events, land acquisition provisions and mechanisms, damage or injury to third parties, unforeseen ground conditions or subcontracting failures among others.

During the operation phase, it is important to try to foresee events that can change or alter the expected project's performance. This includes issues like how to deal with competing roads, what to do when any other work affects the concession's level of service -- e.g., the construction of a railroad crossing, how to deal with accidents on the road -- and particularly when there is a blockage of the road, or time overruns in maintenance

works -- specially if it affects the level of service. Finally, there are issues that can arise at any time during the project's life such as insolvency of any of the firms constituting the concessionaire, or a misunderstanding of what each party is entitled to when signing the contract -- this is specially relevant for foreign investors that are used to different legal systems and practices. The following are examples of what are considered to be the main sources of project risk that may have substantial impact in privatization projects.

2.3.2.1 Planning and Preparation Phase

Bid Risk and Competition

The Bid risk is related to the risk of not having awarded the project. This risk is resolved early in the project and is expected to be borne exclusively by the concessionaire. However, there are exceptions like the Channel Tunnel project where, because the high cost of preparing the bids, the governments paid a fixed sum to the parties who classified after a certain round. However, the most common practice is for the concessionaire to bear all the risk. Normally, this phase is funded solely with equity.

The lack of transparency in the bidding process increases the competition risk.

Knowledge of the Project

The previous knowledge is an issue that will prove important as evidenced by the Mexican and the Colombian case. It is desirable for the concessionaire to acquire a good knowledge of the project beforehand. The benefits of this should be reflected in the bids because the better the knowledge about the project the concessionaire has, the lower the uncertainty he faces. Therefore, the concessionaire will be in a better position to manage and foresee the potential risks, and consequently to define its risk premium. This in itself is not a source of risk, but of uncertainty. The uncertainty caused by the lack of knowledge makes the task of assessing risk difficult.

Good and unambiguous bidding documents are essential if the project is to be successful. For its preparation, it is very important to take advantage of the international experience and knowledge -- of the way potential international bidders make business -- that the major investment banks have. Governments can decide to work in two different ways. They can have very elaborate and definitive bidding documents, relying on high quality studies (e.g. traffic forecast), or they can prepare a looser set of pre-bidding documents, and after a first selection, chosen bidders and governments work together to prepare the final bidding documents, like was the case in Argentina. This last scheme is particularly suitable for encouraging and facilitating the gathering of potential bidders to discuss the project and the contract in order to take their views into account. It may be desirable to create a pool of potential bidders[9] in charge of overseeing parts that have to be fine tuned, like some parts of the design or traffic projections. However, the main drawback of this solution is its high cost for the private parties.

Technology

If governments want to reduce uncertainty during the development of the project, it is advisable to open bids for projects that require proven technology, that is, where both the concessionaire and the government have previous experience. In addition, governments should focus on "good projects", that have strong cash flows, to allow the concessionaires to have a fair return, and meet their financial obligations.

License Procurement Risk

License procurement is a difficult activity for risk allocation as its development depends on the performance of both parties: concessionaire's effort in preparing the required documentation and government efficiency and coordination. In this case, the risk should be allocated in a case by case basis, depending on which of the two aspects is more critical. It is very possible, and not desired that the final outcome would be that of shared

[9] The bidding process can consist of two rounds, where prequalified and really interested candidates move to the final round.

responsibility. This situation is not desired because of the difficulty of determining who is accountable in conflicting situations.

2.3.2.2 Construction Phase

Sponsor's Performance and Completion Risks

In principle, the contract has built-in incentives to punish the concessionaire for a poor management, and reward it from good performances. In this sense, the concessionaire will assume the risks of its own performance. One of the most common ways of providing punishment is through insurance policies issued to the government, to be made effective in case standards are not delivered. For the case of completion on time, it is common to charge penalties for delays and to award efficiency bonuses for works finished before the scheduled date.

Cost overruns

Cost overruns are commercial in nature if additional work is not required. Therefore they must be borne by the concessionaire. A solution is the use of fixed-price or turnkey contracts. However, the ability of firms to bear this risk for large projects remains in question. Allocation rules sharing this risk are likely to be present in many cases. The main problem with this issue is when governments open bidding processes with a poor knowledge of the project, increasing largely the uncertainty of amount of work required for the construction. A further consideration that is derived as well from a lack of preparation is when governments request a change in the road alignment.

Land Acquisition

Land acquisition processes can take a long time and be difficult. Governments might not have efficient procedures for buying land, or the resources might take long to be paid for. In concession projects delays caused by a government's agency once the contract has started can be very costly and sometimes difficult to solve. It is in the best

interest of governments to ensure that their land acquisition procedure is expeditious, and to bear in mind that it might be subject to continuous adjustments. This should be a concern for top officials and not only for lower operational tiers.

Subcontracting

Subcontracting is a responsibility of the concessionaire, therefore the risk associated must be borne by the private party. If a subcontractor fails to deliver a work, or delivers it at a higher cost than expected, then the concessionaire should always assume the responsibility. Concessionaires could find mechanisms to translate this risk directly to the subcontractors based on their performance -- like fixed-price contracts.

2.3.2.3 Operation Phase

Exit Option

Contracts should include exit options that allow ways of selling the project at any time, as long as it is acceptable for the other party. This might be important in the event that the concessionaire gets in financial difficulties, in which case the quality of the service provided may be affected. The project can be sold at a discounted price to an interested party, reducing the impact in the development of the project and the exposure of the firm. It is important to assure that the government will require the same standards irrespective of the party. Additionally, clear rules of when this would be allowed should be defined.

Maintenance -Standards and Costs

The concessionaire most be accountable for failing to deliver the agreed quality standards or for delivering it at a higher cost. For the first case an operation agreement must exist, stating clearly the minimum standards and the consequences of not complying, which could include losing the toll revenue for a certain period of time, making effective an insurance issued to the government, or in extreme cases, termination of the contract. To avoid misuse of the mechanisms, they most be clearly defined in the contract.

III. THE PRACTICE

This chapter is an attempt to understand the Colombian toll road privatization program using the theoretical framework developed in the previous section. It starts with an overview of the world wide trend of the neo-liberal reforms undertaken by numerous governments since the 1980s. Accepting that the general environment of the country is an important factor for the success of any privatization process, the second part presents a general overview of the current economic, political and legal environment of the country. The third section concentrates specifically in the road concession program. A brief description of the highway network is presented to introduce the main constraints and challenges that the government faces, followed by the evolution of the road privatization program. Through seven concession contracts and several informal interviews to the main players, risk and other major elements are analyzed individually, to provide a picture of how the theoretical principles have been translated to reality.

3.1 THE REFORMS: SHAPING THE STATE FOR PRIVATE PARTICIPATION

In line with the neo-liberal thought around the world, Colombia (Box 3.1) started its restructuring by the end of the decade of the 1980s. Although public sector ownership has been less predominant than in other Latin American countries, at that time the government was highly protectionist (World Bank, 1994c). In 1990, the Barco administration announced a plan to modernize the state, "Plan para la Modernización del Estado", in which the core of the reforms was aimed at the liberalization of trade and the improvement of transport infrastructure. Later in 1990, with the entrant Gaviria administration, the plan was adopted and deepened in the scope of the trade liberalization and the reform of the public sector (IMF, 1995). The aim of the reforms was to gain efficiency in the goods, labor, foreign exchange and capital markets, as well as to promote a higher participation of Colombia in international competition, provide an adequate

macroeconomic condition for an expected larger growth, and the creation of governmental agencies that could respond to the future needs.

BOX 3.1 COLOMBIA

Colombia is situated in the Northwestern corner of South America, limiting with Central America. It is the only country in South America with coasts in both the Atlantic and the Pacific oceans. The 1993 census estimated Colombia's population in 35.9 million, in a area of over 1 million squared kilometers, the fourth largest in South America after Brazil, Argentina and Perú. The country is composed of five regions: the Andean, the Atlantic Coast, the Pacific Coast, the Plains and the Amazon basin. Population is mainly concentrated in the first two zones, particularly in the Andean zone, where 8 of the 10 largest cities are located.

The Andean zone, which is surrounded by all the other regions, has a difficult landscape resulting from three chains of mountains, running parallel in a South-North direction. Dividing the three chains are two of the most important rivers in the country: Magdalena and Cauca. The Magdalena River has played an important role in the country's development. Through this river the Spaniards conquered the lands and founded the capital city, Santa Fé de Bogotá, high in the mountains at an altitude of 2640 meters above sea level. To illustrate the geographical conditions, to go from Bogotá to the seaport in the Pacific coast, it is necessary to go down from Bogotá into the Magdalena River to an altitude of around 300 meters, then up again above 3250 meters and down into the Cauca Valley to about 900 meters, then up again to cross the third chain of mountains (above 1500 meters) to end at the sea level in Buenaventura. In addition, Bogotá is at about 600 km from the ports in the Atlantic coast, but because of the road design and the lack of direct ways, it will take a freight trucks 24 hours to make the trip.

The World Bank classifies Colombia as a lower-middle-income economy, with a GDP per capita of US$ 1,330 in 1992.

According to these guidelines and the new 1991 Constitution, the government undertook several specific actions. In the external sector, two main areas related with trade were active. First, a gradual reduction of tariff levels from 43% in 1989 to 15% in 1994 was accomplished. Second, several trade agreements were signed: with the Andean countries, with Mexico and Venezuela (the G-3), with Chile, with the Caribbean Community, and with Panama. Other major reforms that were undertaken during this period include tax policy, particularly the regime for income and wealth taxation; privatization of existing assets, service provision and construction of new infrastructure;

social security reforms, with the creation of private pension funds; administrative decentralization; financial sector reforms to promote competition and efficiency, including the new role of the Central Bank as an agency relatively independent from the executive branch; and even the agricultural sector was reformed.

With reference to the infrastructure sector this period has been very dynamic and the regulatory framework has changed in all of its subsectors, and in accordance with the new spirit, a much wider an active participation of the private sector has been included.

In the transportation sector, the public entities that managed the railroads and the ports were liquidated with the intention of attracting private participation. In addition, the Ministry of Public Works was restructured to strengthen its planning and regulatory functions, acquiring the new name of Ministry of Transportation. Where lacking, special legislation was passed to allow the participation of the private sector, according to the new investment possibilities. Air industry had three main changes, the country was moving towards an "open skies" policy, airport administration started decentralizing, and private participation for the management and the construction was expected.

In the electric sector similar reforms were undertaken, particularly since 1992, when a brownout[10] sped up the process. In that year, private generators of their own energy could sell their overcapacity to the system, and the free access to transmission and distribution networks was declared. In 1994, a piece of legislation called the "Ley Eléctrica" was passed, regulating and allowing the participation of private or public-private partnerships in the generation of electricity. The "Ley Eléctrica" also established a regulatory commission in charge of overseeing for monopolistic behavior and promoting competition.

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[10] Brownout corresponds to a situation when the electric generation cannot cope with the total demand and it is necessary to cut supply during certain hours of the day. This measure is temporal, and typically happens during unexpected intense drought periods in countries heavily dependent in hydroelectricity.

Reforms in the telecommunication sector have been extensive. Local and national long-distance services were moved from state monopoly to a concession regime in which the private sector, either locals or foreigners, could participate. Later on 1993, the international long distance service was opened to the private sector. The same year, the cellular service was regulated and a bidding process was started, allowing the traditional local telephone companies to create joint ventures with the private sector. The government received more than US$ 1 billion from the cellular process (World Bank, 1994c). A regulatory commission, similar to the one in the electric sector was created. Finally, in 1994 the Television Bill allowed the broadcasting of private channels.

According to the government's Development Plan 1995-1998, the main goals of the participation of the private sector in the infrastructure sector are:

1. To increase efficiency in the operation and construction of the projects and services.
2. To have access to additional resources, in order to supply the needs in a shorter time span.
3. To give priority to the social sector when assigning public funds.
4. To reduce the risks that the public sector was facing at the time[11].
5. To benefit from competition.

The privatization program for the period 1995-1998 aims to attract US$ 12,760 millions (Table 3.1).

[11] This 1995 statement regards the fact that the new administration considers that before 1995, the government was unnecessarily overexposed to risk.

Table 3.1 Infrastructure Privatization Program

Sector	Kind of Projects	Private Participation (US$ millions of 1994)	Total Cost (US$ millions of 1994)
Roads	Construction and Rehabilitation	2,041	2,346
Electric	Generation	1,891	2,248
Gas	Transportation and Distribution	499	499
Oil	Transport, Refinery and Petrochemical	3,292	3,292
Telecom-munications	Long-distance, Local, Cellular, Value Added Services, Television and Post	1,595	4,375
TOTAL		9,318	12,760

Source: DNP, 1995b

3.2 COLOMBIA: A PLACE TO INVEST ?

As stated in the theoretical framework, investors will not only take into account the characteristics of the projects. Other factors concerning the general environment are crucial for the investment decision, particularly when the funds are to be tied for long periods of time, and there is little or no marketability for the projects. Economic and political stability, suitability of the legal framework and government's commitment among others, shape the perception of the future outlook of the business environment, which ultimately determines the attractiveness for private capital. These factors might be weighted differently by each of the potential investors. For instance, foreigners might give more importance to macroeconomic performance -- because of exchange rate risk -- than local participants.

It is very difficult to provide a panorama that reflects the view of every investor, as expectations and subjective factors play a role in the decision making process. For example, after the Mexico's 1994 devaluation crisis, many investors removed their capital

from Latin America, because of worries about similar situations in other countries of the region. In addition, an investor's decision of non participation may be a matter of principle, like in the case of disagreement with the political system of a particular country.

This section presents the main features of the political, economic and legal environment in Colombia, including the recent development of the local capital markets, which are considered essential for a healthy future performance of privatization processes.

3.2.1 Economic and Political Stability

Colombia presents contrasts in its political, social and economic evolution. While the stability of its democratic system has been considered an asset, Colombia shows a great social instability as evidenced by the extensive guerrilla movements and drug traffic. Violence has been the main output of this duality that has characterized the country's recent history (Box 3.2).

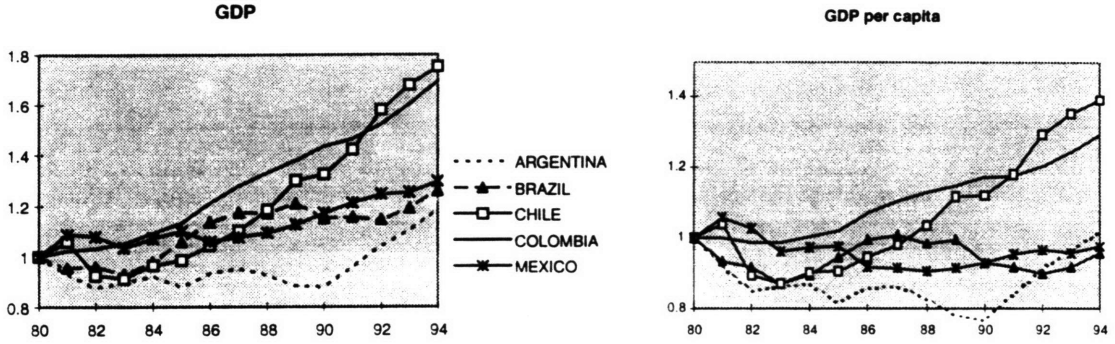
Although the long-term effects are not clear, Colombia is currently facing a period of unstable political situation: the elected president has been accused of receiving funding from the drug lords for his presidential campaign. This situation has led to extensive social debates and intensive investigations by the general attorney. This turmoil has been accompanied by an escalation of the guerrilla action.

Economic performance has to be added to the picture. Colombia has a record of sound macroeconomic management, including a conservative debt policy. Economic growth, debt management, inflation and credit ratings will be shortly presented below.

Colombia has been the only Latin American country to have positive growth every year for the second half of the century; this comparison holds for the last 15 years. This growth has been relatively stable without large increases, however, since 1980 the compounded annual growth is 3.84%, one of the highest in the region. Even further, in

per capita terms the results have been good compared to some Latin American countries (Figure 3.1).

Figure 3.1 Economic Growth (1980-1994)
1980 = 1



Data source: Until 1990 - Wilkie, 1995. From 1991 - EIU, country reports 95-96

During the 1981-1983 world recession that lead the developing world to a debt crisis, most of the countries defaulted their sovereign debt. During this difficult period, Colombia was the only Latin American country that met all its debt payments, using its foreign reserves and sometimes resolving its liquidity problem with new credits. It can be said that the problem was of liquidity rather than insolvency, because of its ability to get new loans. As of the end of 1994, Colombia's external debt was US$ 20 billion, from which US$ 13.3 billion was public debt and US$ 6.7 private.

Inflation in Colombia has been high for a sustained period. Although the country has not gone through any hyperinflation, since 1980 inflation has averaged 24.4% per year. Because of sound fiscal policy, typical large fluctuations under high inflation periods have not occurred. Even further, volatility has been the lowest in the region (Herz, 1996) partly because of the periods of hyperinflation in some of the countries.

BOX 3.2 Colombia: Social and Political Legacy.

The Colombian political system has been dominated by two parties -- Liberal and Conservative, almost since the independence from Spain. Overtime, differences between the parties brought along violence. The most crude period, called "La Violencia" was between 1948 and 1958; during this years the estimated number of deaths exceeds 250,000. In 1953, the only military regime of this century took the power in an attempt to stop the ongoing civil war. In 1957, the traditional parties made an agreement called "Frente Nacional", which implied alternating the presidency and sharing cabinet and congress positions for 16 years -- four presidential periods. In 1974 president rotation ceased, but the model of shared cabinet positions still remains. This situation is considered the source of the feeling of exclusion felt by other members of society.

Guerrilla is one of the most de-stabilizing forces of the country. It has been active since mid-60s, and is composed by several groups, of which the most important have been the Movimiento 19 de Abril - M-19, Fuerzas Armadas Revolucionarias de Colombia -FARC, Ejército Popular de Liberación -EPL, Ejército de Liberación Nacional -ELN, and the Quintín Lame. Of all of them, only the FARC and the ELN are still active, the other groups were demobilized in the late-80's and early -90's, and accepted as part of the democratic environment -- particularly the M-19 that became a political group. Efforts to come to an agreement with the active groups continue on the part of the government. Since the 1980s, the guerrilla has been involved in drug traffic, extortion and kidnapping. Their focus on profit has somehow illegitimized the movement from an ideological viewpoint.

Drug traffic has caused great social unstability, and has added complexity to Colombia's international relations, particularly with the United States. Maybe the worst period in the bilateral relations is currently, when there are some allegations about the financing of the presidential campaign by the drug lords of the Cali Cartel.

Violence brought by the drugs cartels has been intense, with several car-bombs, kidnapping, extortion and assassinations.

The main credit rating firms have awarded Colombia a good grade. Colombia and Chile are the only two Latin American countries that have credit ratings for their sovereign debt.

Standard and Poors - S&P - assigns an A+ rating to the country's local currency denominated long term debt and a BBB- rating on foreign currency debt (see Annex 2 for ratings). The higher rating for local currency reflect the country's ability to service this debt given its powers of taxation and control over the domestic financial system. S&P

believes that the political difficulties should not affect the economic and financial fundamentals. Although they recognize that the current situation, which has the country in an 'internal state of commotion', can affect the financial markets in the short term, given the weaker confidence in the markets and the consequent slowness in economic growth. The stable outlook on local currency reflects the belief that fiscal and monetary policies will result in steady growth, small fiscal imbalances and gradual disinflation. The outlook on foreign debt reflects the belief that the same economic policies will strengthen the trend in Colombia's balance of payments.

Credit ratings are not only an indicative of the country's economic situation. The implication for infrastructure privatization programs, is that funding for projects will be rated according to the country where they will be developed. Even further, the 'sovereign ceiling' imposed by the host country, means that a particular project will never be rated above the country's grade. Therefore, foreign financing can be relatively expensive. In this sense, Colombia is in a good position.

3.2.2 Legal Framework for Private Participation

The overall reforms undertaken by the government were designed to incentivate and allow the participation of the private sector in the provision of infrastructure and its related services. The main objectives and changes for each sector were already presented, and they demonstrate a drastic shift in the government's approach to the infrastructure area.

In addition to the administrative reforms, one of the key changes was the Contracting Statute[12] passed in 1993. This statute updates and accommodates the contracting rules between the government and the private sector. Two main features must be highlighted from the Statute. The most important is that the private investor is

[12] Law 80 of 1993.

guaranteed the restablishment of the "economic equilibrium", whenever the causes are not imputable to the consortium. "Economic equilibrium" seems to mean profitability, and therefore refers to not only direct costs but financial costs as well. This might be the single most important contribution of the legal framework reform to attract private investors. The second issue is the signaling of the government's long-term commitment to this new trend.

3.2.3 Local Capital Markets Development

The aim of the reforms to the capital markets, that started since 1990, were to change the existing characteristics of the capital markets: a weakly developed securitization segment, and an inefficient banking system. Most of the debt of the privates was through bank credits, as interests were tax deductible -- acting as a subsidy. Reforms that supported this goal included privatization of nationalized banks; social security reforms, with the creation of private pension funds; financial sector reforms to promote competition and efficiency and the new role of the Central Bank as an agency relatively independent from the executive branch.

The law 45 of 1990 -- called "Banking Law", was passed to update the financial policies to facilitate the development of a more efficient and modern financial sector. By regulating the information disclosure, the law would bring more transparency to the system; and by introducing multibanking system, would increase the competition, reducing the potential for market segmentation by allowing different kind of institutions to perform the same activities (e.g. it allowed the banks to create parent stock brokers, therefore part of the bank resources could be used in stock operations).

Laws 50 of 1990 created funds for an employee compulsory saving called 'cesantías'. Before the law, the resources from the cesantías were managed by the employer. With the reform, the main financial institutions created a service to manage this

funds, enlarging the resources available in the capital markets. In a similar way, law 100 of 1993 modified the social security system, allowing the creation of private pension funds. These pension funds will invest in the capital market. This system replaces the old state owned pay-as-you-go one.

In addition, the government has shown interest in and commitment to the development of a healthy capital market, through the creation of a public-private body called "Misión para el Mercado de Capitales", with the following objectives[13]:

1. To identify the most significant limitations, regulatory or of any kind, that make difficult the development of the local capital markets.
2. To compare the regulation and development of Colombia's capital market, with the most representative ones, and identify current trends.
3. To propose the strategy and regulation to increase the supply of public sectors securities and the ones of the private sector when participates in the provision of public goods (e.g. infrastructure).
4. To propose the strategy and regulation to develop financial instruments and create portfolio valuation at market prices.
5. To examine the existing regulation, control and promotion of the capital market, and to formulate recommendations.
6. To formulate recommendations regarding the organization and institutional development of the capital markets.

However, in practice the results for strengthening the security segment have not been particularly positive so far, as evidenced by the President of the Bogotá Stock Market: "we have followed all recipes of the textbooks in order to increase the supply of paper[14] here, without much success" (Carlos Caballero in Sedelnik, 1995). The picture is more puzzling when considering that the Colombian tax regime provides great incentive for equity investors, when compared to any other Latin-American country; the

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13 From Decree 2352, October 20, 1994.

14 Securities.

government has undertaken the reforms that allows the creation of long term investors -- e.g., pension funds; and Colombia is one of the two Latin American countries with investment grade rating. However, it seems that firms are reluctant to issue shares, as they are afraid of the possibility of money made in illegal activities entering their business. More specifically, in Colombia entrepreneurs are not willing to take the risk of receiving money from the drug cartels. This at least is part of the explanation.

Finally, the Colombian agenda in the development of the internal capital market takes into account the benefits and possibilities generated by infrastructure privatization programs, as it can be seen in the following statement of one of the leaders of the process: "Colombia is looking for the formula in order to take advantage of the development of infrastructure so that it can be done parallel and simultaneously with the development of the capital market" (in Sedelnik, 95). The idea behind this, is to develop the long-term segment of the capital market by matching the supply of long-term securities -- issued by the concessionaires, and their demand (by any investor, particularly the newly created institutional ones).

3.3 THE ROADS

3.3.1 Colombian Highway Network

The historical development of the road network can be divided in three periods, according to the rationale of expansion and to the administrative organization. The evolution during this century shifted from intra-regional, through inter-regional, to international emphasis.

The first period corresponds to the first half of the century when still the rivers, the railways and old Spanish trails were the main modes of communication with the rest of the

world. From the country's viewpoint, the connection of some of its regions with the rest of the world was a key consideration, given the increasing importance of the coffee exports. Therefore, because of the importance of other modes, road construction developed with the purpose of joining some towns to their respective regional center. This was under the responsibility of the Ministry of Public Works, which was created in 1905. Difficult geographic conditions have always played a role on the communications network development, as evidenced since the colonial period when Colombia had an inward economic development (Halperín, 93).

The second period can be traced to the middle of the century, when the Currie Mission[15] found that the road network was not properly integrated, and that many regions were isolated (DNP, 91). Therefore, this period was characterized by the emphasis on constructing the linkages between the main regions of the country, through the connection of the main cities. The role of the Central Government was emphasized, and by the end of this period the government was responsible for 56% of the total network: all the primary network, 55% of the secondary and 52% of the penetration roads (Table 3.2).

Table 3.2 Road Network

Road Classification	Total Network ('000 km)	Under National Administration ('000 km)
National	6	6
Secondary	38	20
Penetration roads	58	30
Total	102	56

Source: DNP, 91

This high concentration of road administration had as a consequence a large atomization of the budget or scattered investment in several projects. This resulted in inefficient execution of the works and high administrative cost for the Ministry (DNP, 91).

[15] In 1949, Lauchlin Currie was head of the first World Bank study mission to any country (Currie, 81).

The political pressures and the burden on the budget to satisfy investments in so many projects, delayed the maintenance works, leading to a high deterioration of the network (Figure 3.2). The problem was exacerbated by the fact that delays increased the cost of maintaining the National Network at desired levels to US$ 800 million, ten times more than under periodic maintenance program (DNP, 95a).

Design specifications do not correspond to the country's present level of development, as roads were designed for short-hauls and low traffic (DNP, 95). This has become a major source of inefficiency for the operation of the road mode, particularly in the presence of extensive mountainous conditions (Figure 3.2), where most of the economic activity takes place. From the country's viewpoint this has become a major constraint for development as the road mode has been dominant in the freight service, and has tended to gain share overtime (Figure 3.3).

Figure 3.2 Highway Network

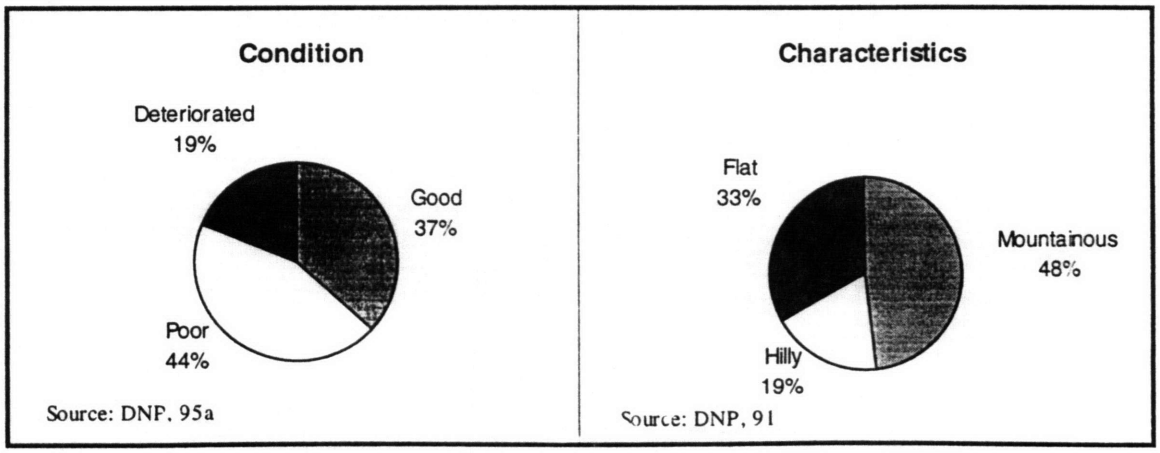
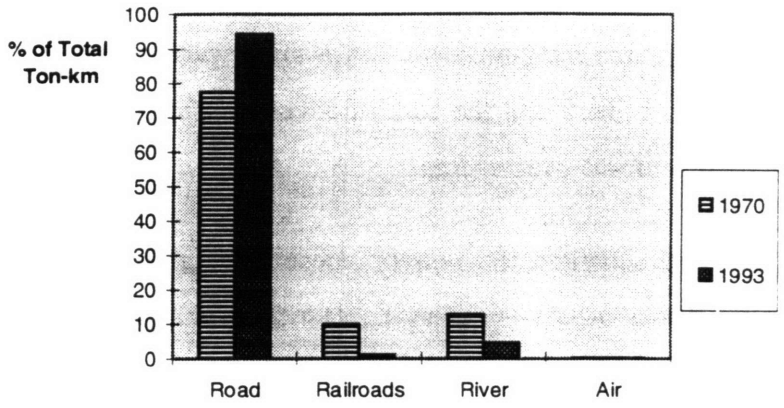


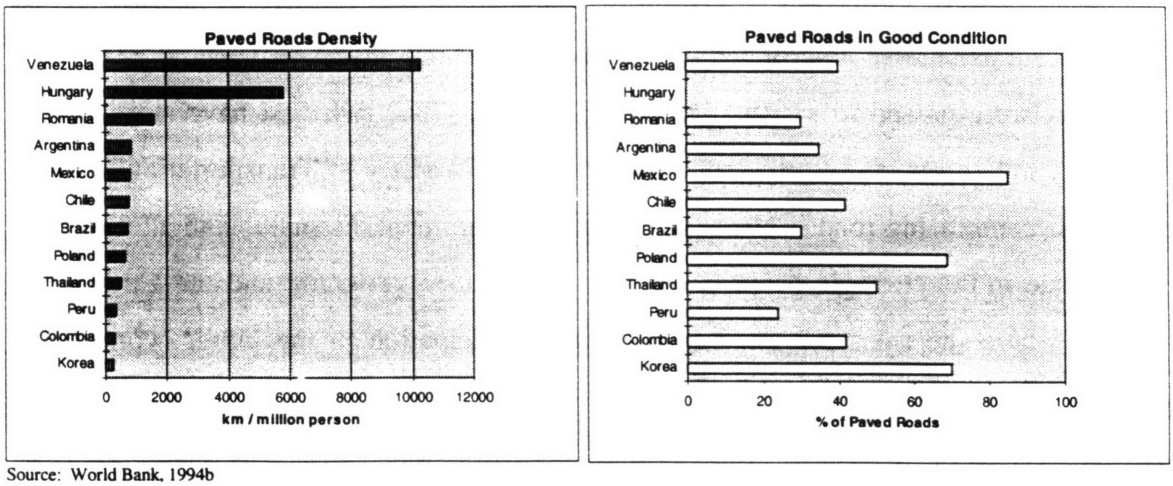
Figure 3.3 Modal Freight Share



Source: Revista Estrategia - Colombia, Issue 208, March 1995.

In addition, Colombia has low road density when compared to other countries of similar development (Figure 3.4). This can be a consequence of the low level of investment in the sector as a proportion of the GDP. The World Bank found that countries with a lag in infrastructure development spend in roads between 2% and 3% of the GDP, industrialized countries between 1.1% and 2.1%, and Colombian investment has been below 1.3% since 1970, with a decreasing tendency except for the years from 1992 (DNP, 95a).

Figure 3.4 Transport Infrastructure:
An International Comparison for Middle-Income Economies



Source: World Bank, 1994b

Another significant problem of the network is related to the inability of the government to enforce truck load limits, as overloading is a major cause of road deterioration. Officials have recognized this as a major problem, and it seems that the corruption generated by bribery and the lack of adequate equipment have been the main obstacles to effectively enforce overloading.

The third period inherited the network described, and corresponds to the shift given by the Barco (1986-1990) and Gaviria (1990-1994) administrations, where the emphasis was made on the linkages of Colombia with the rest of the world. For this purpose, a network called "Red Vial de la Apertura" was defined to be the only central government's responsibility of the total network (Map 3.1). The new Constitution (1991) facilitated this process as it mandated the decentralization of the government. The change to internationalization emphasis can be evidenced as officials now refer to "main export corridors", when they used to talk about roads "linking two main cities".

With the participation of the private sector in the construction and rehabilitation of the road network, the government wanted to solve some of the main problems and update the roads' condition.

3.3.2 The beginnings of the concession program

As exposed above, the government of Colombia made extensive reforms to the legal and administrative environment to accommodate and attract new investors. Three main laws were passed to set the general framework. The two first have already been discussed and correspond to the law that created the Ministry of Transportation[16] which, through decentralizing roads, relieved the central government dispersion and allowed it to concentrate in the strategic projects and the privatization program; and the Contracting Statute, where the rules for the private sector participation in the public works were updated to accommodate to the new needs.

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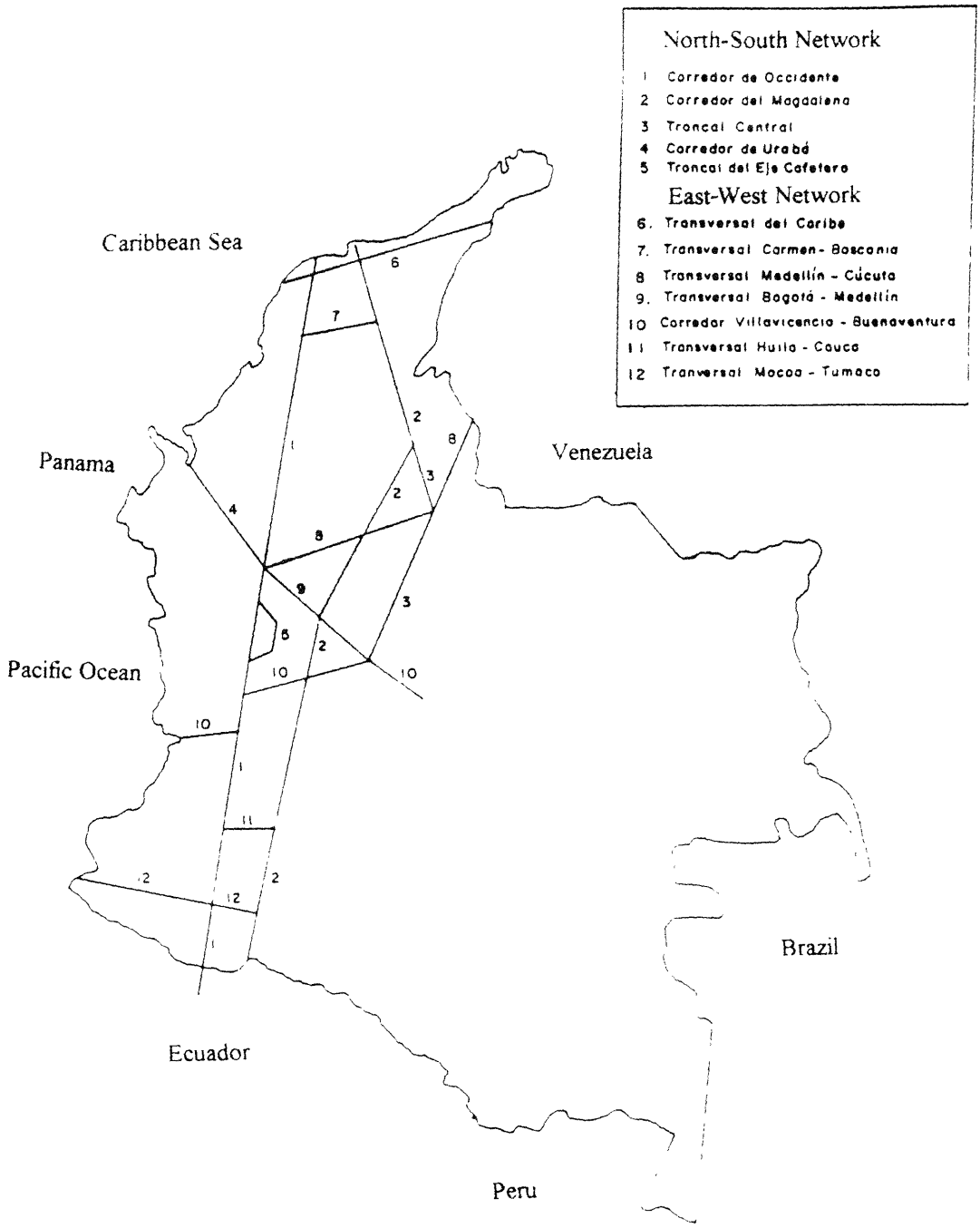
16 Decree 2171 of 1992

Map 3.1 Red Vial de la Apertura

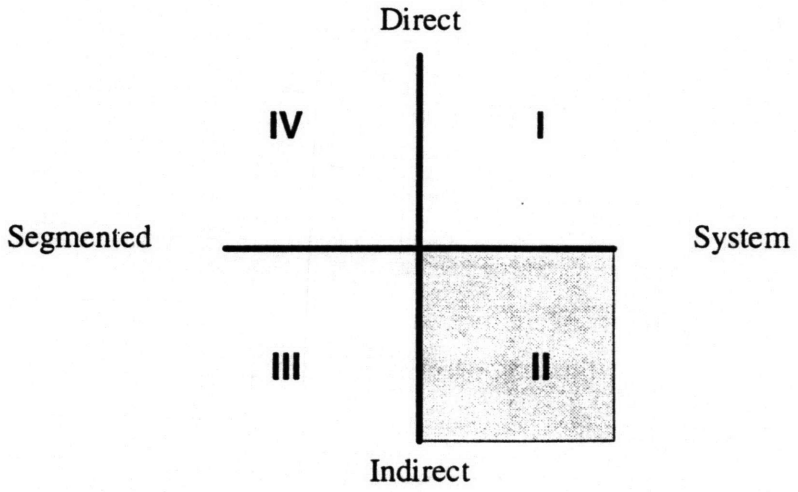


Source: DNP, 1991

Finally, in 1993 the Congress passed the "Transport Law"[17], which created new and altered old mechanisms for generating repayment flows for the concession projects, such as toll securitization -- a long term financial instrument that allows the issue of securities based on the tolls, and "valorización" -- a levy of a betterment project charge on property that has been benefited from the construction of the road. In addition, the law changed the land acquisition procedures, allowing the Ministry of Transportation to buy land at market prices.

The government aims to involve the private sector in the construction, rehabilitation, maintenance and operation of existing and new roads. This corresponds to the Quadrant II in Miller's framework. How close to the vertical axis would depend in this case on the level of detail of the designs, being closer when the definite designs are included (Figure 3.5).

Figure 3.5 Colombian Strategy: BOT



Source: Miller, .?05

For the period 1995-1998 the government plans to award 32 projects (Map 3.2), consisting of 1.083 km of construction and 1.892 km of rehabilitation, requiring a total

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investment of US$ 2.3 billion, from which US$ 2 billion are expected to come from the private sector (Table 3.3). It is important to clarify that the label "construction" does not always mean the construction of a new road, but the expansion of its current capacity, typically from 1 lane to 2 lanes per direction.

Table 3.3 Road Program Cost and Scope

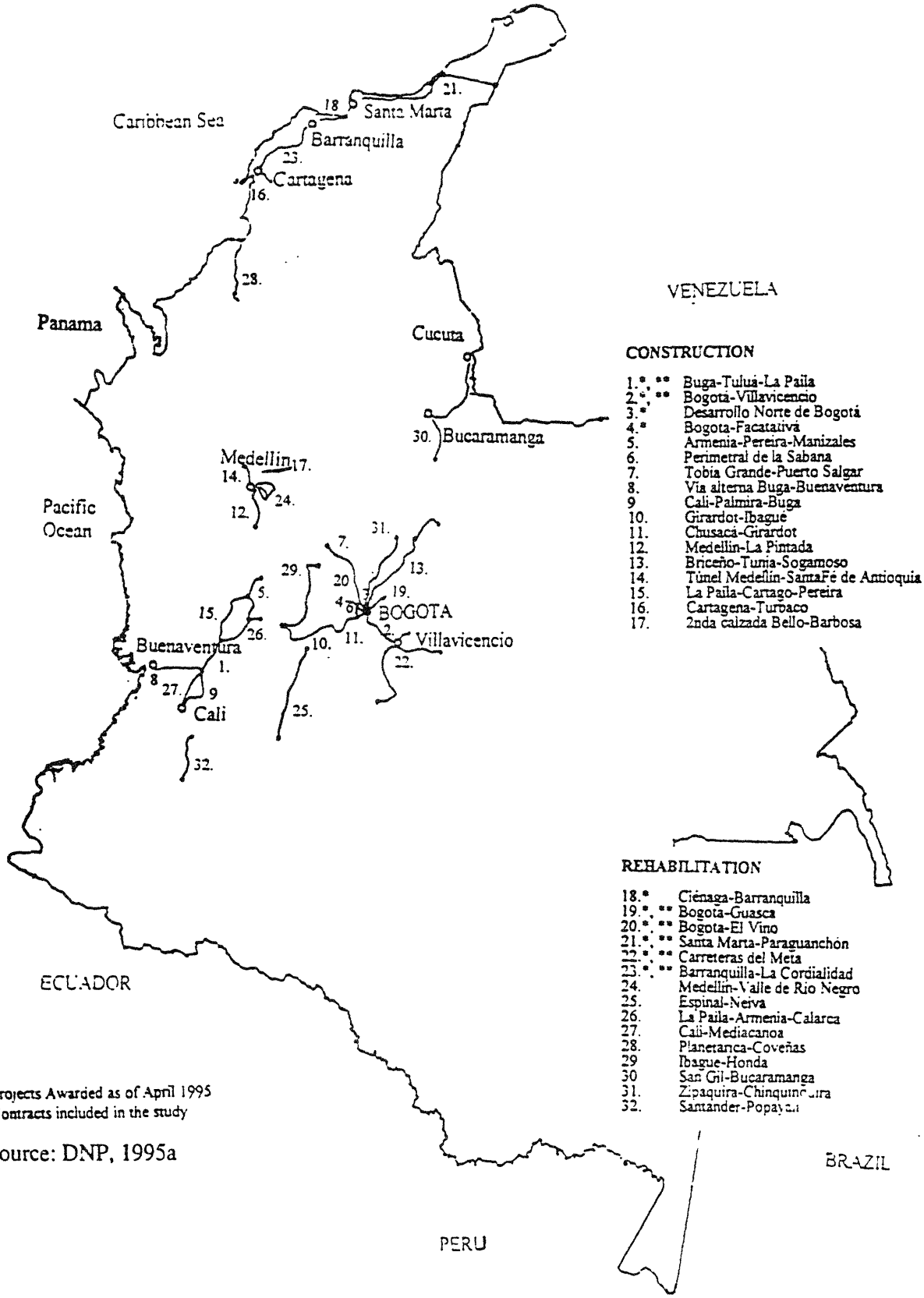
Type of Work	Number of Projects	Length (km)	Cost Total / Private Part. (US$ million 1994)
Construction	17	1,083	671 / 671
Rehabilitation	15	1,892	1370 / 1675
Total	32	2,975	2,041 / 2,346

Source: DNP, 94b

According to a governmental official, visits were made to Mexico and Argentina in order to understand each of the systems and to learn from their experience. He acknowledged that the Colombian system has common features with both of them. The idea of using concessions for existing roads from the Argentinean scheme and the use of a trust to manage the funds from the Mexican system (see Boxes 3.3 and 3.4).

As of April 1995, 13 bidding processes were started, of which 10 have already been awarded (Map 3.2 and Table 3.4). Of the 10 projects, 4 are classified as construction and 6 as rehabilitation. The average cost of the projects of the whole program is US$ 76 millions, presenting differences according to the type of work. For instance, for construction the average is US$ 104 million, with a median of US$ 86 million; while for rehabilitation, the average and the median are US$ 44.7 million and US$ 41 million respectively. For rehabilitation, all the projects that have already started are below the median, while for construction 3 out of the 4 are below.

Map 3.2 Road Privatization Program 1995-1998



* Projects Awarded as of April 1995
** Contracts included in the study

Source: DNP, 1995a

BOX 3.3 ROAD PRIVATIZATION IN MEXICO

"Infrastructure projects are often associated with large construction outlays that result in limited productive use. This can occur as much under private as under public enterprise if the right incentives are not in place." (World Bank Report 1994, pp. 99)

In 1989, within the first quarter of his administration, President Salinas announced a plan for road construction under concession schemes. At the time, economic revival was a main goal of the government, which saw in an intensive road construction program a potential means to reach the objective -- through the resurgence of the construction sector. In addition, high quality infrastructure was considered necessary to foster development. Given that the government was not able to fund the program, the participation of the private sector seemed the only option. The Ministry of Communications and Transportation was to be in charge of the program.

The process

An ambitious program was set by the government in 1989: before 1994, 4000 km of new roads and 7 international bridges were to be constructed through the Build Operate and Transfer scheme - BOT, at an estimated cost of nearly US$ 5 billion. Part of the strategy of the government was to create a bidding process as fair and transparent as possible -- less vulnerable to fraud: a simple and clear awarding criteria. This, combined with the lack of long-term financial instruments that would restrict private participation, resulted in the selection of the shortest concession period as the sole awarding criterion. In addition, the process was divided in two stages: first, prequalification of potential participants and then awarding of the contract.

The Mexican scheme included the provision of key information by the government. Such information covered road alignment, preliminary designs, toll levels -- inflation indexed, cost estimates and traffic projections.

In order to attract investors and to build confidence around the process, independent trusts for each concession, were created. Their duty was to oversee the construction and maintenance of the roads -- review contractor's bills, and manage the resources -- funds coming from loans and the distribution of the toll proceeds.

From the viewpoint of the traffic guarantees, the government offered a target rate of return, calculated using the initial data provided by the government -- cost estimates, toll levels and traffic projections, and the concession period offered. If this target was not achieved, the length of the concession could be expanded. For cost overruns, the private party would be responsible for the first 15%; if the overruns were higher or caused by the government -- delays or suggested change in alignment, it was considered to be grounds for requesting concession expansion.

The consortiums that participated typically included the involvement of the major Mexican construction companies and the main commercial banks -- some of them were nationalized and they may have been pressured to participate in the toll roads (Gómez-Ibáñez and Meyer, 1993). As part of the financing scheme, it was expected that 30% of the cost of the project was equity, and the rest debt. However, in many cases even equity was financed through borrowing.

The Performance

The success of the Mexican road privatization program is difficult to assess. Mixed results can be obtained depending on the criteria used. By 1992, the government awarded 3600 km and several for new toll bridges -- 1300 km and 2 bridges opened to the public. By 1994, 4000 km were constructed or under construction -- less than 5 years, achieving faster provisions rates than during the peaking periods

in Spain and France. In this sense there is no doubt that the program was a success, however other dimensions need to be considered.

There were two main sources of problems: the quality of the bidding documents -- particularly the information available and the way it was used, and the selection criteria. Problems with the information provided relate to traffic projections, toll levels and cost estimates. Detailed traffic analysis was not undertaken by the private party, and the toll levels were very high, even for international standards, in average US$ 20 per 100 km for cars, and up to US$ 140 for trucks -- typically five to ten times higher than in the United States. Extreme examples are the Cuernavaca-Acapulco highway, that charged US$ 70 per direction, for a distance of 260 km, or the Mexico-Toluca highway with 16 km and a toll of US$ 7 -- actual traffic is 20,000 vehicles per day, 26.6% of the projected one. More generally, of 16 concessions reviewed, 5 have traffic less than half of the projected, and 3 higher than projected. Of course, the mismatch between the projections and the results cannot only be blamed to the celerity of the process, but to the price-elasticity of the users who preferred untolled roads, even if it may imply a trip twice as long. Even further, in the competition from untolled roads is particularly fierce in the northern deserts, where untolled roads are flat, straight and uncongested.

Cost overruns were another major problem. They typically amounted to 40%, but in some cases they could amount up to 200%, raising the overall average to 60%. In many cases, cost overruns account for modifications passed by the government. For 29 concessions, the average cost per kilometer was US$ 2.7 million.

The concession periods were too short, all the projects were awarded for less than 12 years, and even some for 5 years. Several concessionaires approached the government in order to request for an increase of the concession period. In addition, they were not willing to participate further if the conditions remained the same. Some roads have been renegotiated for periods as long as thirty years.

Some authors consider that the possibility of renegotiation that was built in the contracts may have given an incentive to overlook the potential problems of the information provided by the Ministry.

Financial Issues

The government started by awarding the "best" projects, that required a smaller governmental participation. In 1990, the government's participation -- federal and state -- was around 10%; however while in order to create profitability its participation rose to 23% in 1992. In 1992, the government shifted from awarding grants to participating as equity holders, so they would benefit from the upside opportunities. Even further, the suggested financial structure was 30% contractor's equity, 40% government equity and 30% debt.

The importance of the road privatization program in the financial sector can be seen through the level of debt held by the banks: US$ 6 billion. The bank's have been considered creative in attracting new investors -- increased the pool of local investors. It has been suggested that it is because they are the only party that is really exposed to risk, as construction firms gain from the required roadwork. It has been also suggested that the initial participation of the banks may have been forced when they were still under the control of the government (Gómez-Ibáñez, 93).

As time passed, and some projects were consolidating, uncertainty diminished. This is reflected in the financial instruments that were available in the local capital market. Initially, debt from normal loan credits were the main source of funding. Then medium term infrastructure bonds were available in the market, but with the guarantee of the bank. Finally, as road demand was more predictable, securities bac':ed only with the tolls proceeds were issued.

"There are signs that the most difficult period is past. In the long run, consolidations of toll roads, longer concession periods, and more realistic traffic and cost projections, along with economic growth and greater financial responsibility on the part of the project's private sponsor, should bring significant returns on this infrastructure investment." (World Bank Report 1994, pp. 99)

Table 3.4 Privatized Projects in Process as of April 1995.

Project	Type of Project	Number of Bidders	Length (km)	Cost (US$ million 1994)
1. Buga - La Paila	Constr.	n.a.	58	59
2. Bogotá - Villavicencio	Constr.	2	55	230
3. Santa Marta - Paraguachón	Rehab.	1	250	35
4. Carreteras del Meta	Rehab.	1	238	41
5. Bogotá - El Vino	Rehab.	1	31	31
6. Bogotá - Guasca	Rehab.	1	53	8
7. Barranquilla - La Cordialidad	Rehab.	2	81	13
8. Bogotá - Facatativa	Constr.	n.a.	40	59
9. Desarrollo Norte de Bogotá	Constr.	2	45	84
10. Ciénaga - Barranquilla	Rehab.	n.a.	60	27

Data source: DNP, 1995b

The government's policy for selecting the roads relied mainly on two criteria: a road of the national highway network, coupled with a potential for profitability. As income depends on traffic, the roads with heavier traffic were expected to be the first awarded. Most of the time these roads should correspond to the closer segments of roads communicating the main cities. The sample of 10 projects supports the previous point, given that Bogotá, which is the capital and largest city, has 5 projects; and only 2 projects are not close to the top four cities (Table 3.5).

Table 3.5 Concession Projects Location

City	City Ranking[18]	Number of Projects
Bogotá	1	5
Barranquilla	4	2
Cali	2	1
Santa Marta	12	1
Villavicencio	16	1

Data source: Dane, 1991

[18] The cities are ranked according to the 1990 projected population.

According to officials interviewed, the government has considered the importance of demonstration effect. For this it has made an effort of selecting projects with high traffic, below US$ 100 millions and that run mainly through flat areas. Although this criteria has been the case in most of the projects, there is an exception: the road Bogotá-Villavicencio, which not only is in mountainous terrain, but specially difficult ground conditions are foreseen. In addition, the project is the second more costly of the whole program: US$ 230 millions. In fact, officials recognize that this is the project with more problems in the process. However, the government is committed to the success of the program, and all the relevant entities are cooperating.

So far, it has been very difficult to attract foreign capital. Foreign resources are present either as loans or through the participation of an international engineering firm, but not as equity for investment purposes. One of the causes can be the poor promotion efforts that government has undertaken, particularly at the international level. Although this seems to be important, it is not clear the role played by other factors such as some of the analyzed in the following section.

3.3.3 Risk And Other Main Issues

In order to analyze risk allocation and other major issues, 7 of 10 concession contracts awarded as of April 1995 were studied[19] (Map 3.2). To enrich the analysis several parties involved in the program were informally interviewed. Interviewees included governmental officials, a World Bank official, a lawyer that represents one consortium, an investment banker, and some private participants representing the financial side of the consortia. The missing group in this analysis corresponds to representatives of the construction firms.

[19] The contracts correspond to the first 7 projects in Table 3.9.

In the theoretical framework the importance of risk management and allocation was stressed. For modeling purposes, three main issues were highlighted: investor's risk-return trade-off, proper risk allocation, and interest of government in reducing uncertainty. Using the classification of country and project risk developed in the previous chapter, this section studies the Colombian case through the review of these issues as treated in the sample of contracts. In addition to risk considerations, other relevant points will be discussed. While going through this section, it is interesting to notice that many of the issues are the same that appeared in the Mexican and Argentinean cases (Boxes 3.3 and 3.4).

In order to deal with unexpected situations, the government established a mechanism to be used whenever any compensation is required. In addition, it is important to be aware of the awarding criteria, as it would help to better understand the relevance of each of the issues, and to know over which parameters were the bidders competing. Given the relevance of both issues, the "General Compensation System" and the awarding criteria will be described first.

3.3.3 1 General Compensation System

According to the mandate of the Contracting Statute, the Ministry of Transportation developed three ways for compensating the concessionaire in the event of an economic disequilibrium -- i.e., variation of the internal rate of return. Extension of the concession period, permission to increase tolls above the predetermined level, and direct payments through the national budget are the three mechanisms included in the contracts, and are expected to be used in this order of preference. However, all the mechanisms as designed have problems of liquidity. Liquidity of the guarantees is a key issue for concessions, given that project finance will try to find the best available match between the cash inflow and the debt payment schedule. Therefore, any change that alters the cashflow profile will distort the consortium financial program. This is particularly acute in

the short run, when it could drive the consortium to a situation of liquidity crisis, reducing the attractiveness and financiability of the project, as the debt issuers would be in a risky position. Potential lenders may be reluctant to fund projects which are going over difficulties if they consider that doing so would expose them further to risk (see Channel Tunnel Case, Box 2.1).

Extending the concession period is the mechanism that has more intense impact in the cashflow modification, as all the compensation will take place in the distant future. Allowing to increase the tolls, is less drastic but it is as well a long term measure. Finally, the use of resources from the national budget is the more liquid of all the cases, but still will have a lag. It is uncertain how long this lag will be, particularly if the resources have to follow all the established governmental procedures (e.g., be approved in the Congress). The government could establish a fourth mechanism with the special characteristic of being very liquid, in a way that corresponds to the private party needs. Such mechanism could be a standby facility. The government could have a pre-approved credit, with for example the World Bank, that would be used strictly for these cases, and otherwise would not be disbursed. In this sense, concessionaires could have the resources without having to redesign their financial program, and the government would be able to pay the resources over a period of time (as opposed to the use of the third mechanism, the national budget).

3.3.3.2 Awarding Criteria

Awarding criteria is key when analyzing privatization programs as it allows to understand over what variables the concessionaires are competing. The information presented is based on the case of the bidding process for the road Bogotá-Facatativá. This road was awarded before April 1995, but it does not make part of the 7 contracts analyzed in detail. However, to the best of my knowledge, the awarding formula remained essentially the same for all the cases.

Seven criteria define the awarding formula: toll level - T, toll indexing - TI, level of income guarantee - G, level of cost overruns borne by the concessionaire - CO, construction - CL - and operation - OL - period length and additional works offered - AW. The contract was to be awarded to the proposal with a lower score according to the following formula:

$$\text{Score} = (T * TI) + (T * G) + (T * CO) + (T * CL) + (T * OL) + AW$$

Toll Level - T

In order to get a single number for this variable, the toll level proposed by the concessionaire for each of the vehicle categories and toll booths is weighted. Rewriting the awarding formula, the importance of this factor can be appreciated:

$$\text{Score} = T * (TI + G + CO + CL + OL) + AW$$

Toll Indexing - TI

This variable corresponds to the toll indexing formula that will be in place during the life of the contract. For this specific case, the government gave two possibilities. The first, to increase the toll whenever the Consumer's Price Index - CPI -, compounded from the date of the previous toll increase, exceeds 10% or after a year of the previous increase -- whatever comes first. The second, in a similar fashion but with 21% instead of 10%. The scores awarded were 1.1 and 0.8 respectively.

Level of Income Guarantee - G

Traffic projections are given with the bidding documents, and the government establishes a minimum traffic that it will guarantee. Based on this information, the concessionaire proposes a value that corresponds to the percentage below which the government would compensate the concessionaire. In other words, traffic levels between the government's projections and the value proposed, the risk is borne by the concessionaire. The government established that in no case the guarantee level could be lower than 70%.

BOX 3.4 ROAD PRIVATIZATION IN ARGENTINA

After his election in 1989, president Menem made public his structural economic reform program, which included the reduction of the size of the government, deregulation of most sectors, and opening of borders to global competition. In an effort to foster confidence and reduce the possibility of financing public deficits by currency emissions, in 1991 the new peso was created and pegged to the dollar in a fix exchange rate of 1 new peso per 1 dollar. In addition, the government was obliged to maintain in its reserves one dollar for every new peso in circulation, and free exchange was allowed.

Privatization was part of the Reform Program, as an answer to the deficit experienced by public agencies, and to the lack of investment resources to keep pace with the requirements of the expected fast economic growth. Highways, railways, waterways and ports were among the transport sector facilities privatized.

The process

Highways started early, and in 1989 twelve 12-year concession bidding processes were started. This first stage targeted the intercity highway system with deteriorated pavement. Using this criteria, 9830 km of roads with daily traffic of at least 2,000 or 2,500 vehicles were considered as suitable for privatization. The object of the concessions was the maintenance, rehabilitation and capacity expansion of the roads -- a major difference with the Mexican case, where new construction of roads was the target. The concessions were awarded in 1990.

In 1992, the second stage ot highway privatization started with a shift in the rationale for road selection: improvement of the access to the main metropolitan areas. For the case of Buenos Aires, three concessions were awarded in 1994. Their objective was to increase the capacity of the Northern, Western and Southern access of the city. For other Metropolitan areas (Córdoba and Mendoza), the central government granted the provincial authorities to develop similar schemes.

The Performance

"Argentina's transport privatizations appear to be generating many of the desired improvements in efficiency, services, and prices but not without problems and complications." (Gómez-Ibáñez, 1995).

For the intercity case, all twelve contracts were renegotiated in 1991. Two main reasons account for the need of change. The first one, regards the apparent inadequate government strategy. Most of the investment was required some years after awarding the contract, once the concessionaire would have built some capital from toll collection. However, users -- that were not previously required to pay tolls -- found unacceptable being tolled before major improvements took place. The second main reason, was a measure to fight inflation that rendered price indexing illegal, which was the toll base in the contracts. The result: lower tolls and reduced scope in the expansion. Although it cannot be said that all problems are solved, since 1991 few complaints have taken place. Road conditions have improved, as well as road usage, although there is no evidence that the maintenance costs are lower than under public administration. Finally, by 1995, some concessionaires have started arguing that because of the economic growth, the initial capacity expansion is required and should be included again.

For the Metropolitan access case few issues have emerged, partly because of the lessons of past experiences were applied -- no tolls were charged before road improvement, and maybe because they are recent contracts.

"These concessions promise to provide some badly needed increases in urban highway capacity that the government might not have built otherwise." (Gómez-Ibáñez, 1995).

Cost Overruns - CO

The government recognizes the following cost overruns, as long as they are not imputable to the concessionaire: 100%, if the overrun is below 30% of the proposed cost -- indexed by inflation; 75%, if the overrun is between 30% and 50%; and nothing when the overruns exceeds 50%. Nevertheless, the concessionaire is free to propose any value X -- lower than 50%, from which it assumes full responsibility for the cost overruns. The score was calculated as follows:

$$CO = 1.0 - (50\% - X\%)$$

Construction Period Length - CL

The score for the construction period is calculated as follows:

$$CL = 0.5 * (Y / 24),$$

where Y is the number of months proposed by the concessionaire to undertake the construction. It is reasonable to assume the government's estimates for this activity is 24 months.

Operation Period Length - OL

In a similar fashion to the construction case, the score for the operation is calculated as follows:

$$CL = 0.5 * (Z / 168),$$

where Z is the number of months proposed by the concessionaire for the operation of the road. It is reasonable to assume the government estimates that with 168 months the concessionaire could get an acceptable return.

Additional Work - AW

The principle for this case is that the government lists one or more potential works, which is not the most important but that could be of use, and the concessionaire gets additional reduction in the score for it -- remember that the minimum score is the one that gets the contract. From the information available, the scoring mechanism for this variable

is not very clear. However, given that they are not part of the main object of the contract, their relative weight in the awarding process should be low.

In sum, of the seven criteria, the dominant one seems to be the toll level - TO - as it affects five variables. Additional Work - AW, which is not multiplied by the toll level should, in principle, not be a decisive variable as it does not reflect the core of the project. In order to provide an idea of the relative importance of each of the variables, Table 3.6 summarizes the range of the values for the five cases that are affected by the toll level.

Table 3.6 Value Range of the Awarding Criteria

Criteria	Value Range
Toll Indexing - TI	Either 0.8 or 1.1
Level of Income Guarantee - G	Higher than 0.7
Cost Overruns - CO	Between 0.5 and 1.0
Construction Period Length - CL	Around 0.5
Operation Period Length - OL	Around 0.5

The government has considered that an awarding formula with so many criteria may be unnecessarily complicated, and therefore they are working to reduce the number of variables.

3.3.3.3 Country Risk

Country risk takes into consideration variables that affect the project but that do not depend at all on the concessionaire's performance, and that normally can be influenced by governmental policies. These risks are usually of an economic, political and/or regulatory character, and therefore are not related to the performance of the consortium. However, they have significant impact on the investors' perception of risk, which determines the level of return demanded, and limits the number of potential participants. The most important sources of risk for the Colombian case will be discussed.

Inflation

Colombia has had relatively high inflation for a long period of time. Since 1980, inflation has been fluctuating between 20% and 35%. Indexing for inflation is not uncommon in almost every sector of the economy. Few, but significant examples are: salaries which are usually indexed in a yearly basis, savings corporations that provide both indexed saving accounts and indexed housing loans, and indexation of the key public services. Even further, public works have been traditionally indexed. This was particularly important when the execution of a contract could last over 5 years. Under these circumstances prices could be more than twice the originals at the end of the period -- maintaining the real value constant. In concessions, as contracts are long-termed, the uncertainty rises and therefore inflation provisions are obvious for an environment that is familiar with its use.

Contracts have provisions for inflation risk, in such a way that the private sector would not bear it. Tolls will maintain the real value through time, unless the government considers that there are enough reasons to change the rule, in which case the concessionaire would be compensated using the "General Compensation System". The contracts allow for an updating of tariffs either every year, or when the accumulated inflation since the previous update exceeds a certain value. This value is one of the bidding selection criteria, therefore is determined by the concessionaire in its proposal. Of the seven contracts of the sample, four have a value of 20%, two of 10%, and one, the Barranquilla-Cordialidad project, 21%.

The government however, has power to change the toll indexing rule and this, from the private sector viewpoint, is an important source of uncertainty particularly because it changes the profile of the future cashflow, while the debt payment schedule remains the same.

Currency Devaluation

The issue of devaluation is not mentioned in the contracts -- neither in the Mexican nor in the Argentinean case. The government considers that this risk should be borne by the private sector (DNP, 95b), which coincides with the principles developed in the theoretical framework, particularly in relation to its commercial nature. However, given the long-term character of the contract and the uncertainty about Colombia's future performance might be too high a risk to be borne by the private parties. In an extreme and hypothetical case of full foreign financing, it is very unlikely that someone would like to be exposed to a risk that implies having the assets (expected toll level) and the liabilities in different currencies, a very volatile market, for a long period of time. Under these circumstances, and in an effort to reduce uncertainty, it may be in the best interest of the country to provide mechanisms that reduce this risk. The government could for example, study the possibility of setting some guarantee that is effective when a certain difference between the devaluation and inflation rates occurs, as exposed in chapter two.

Foreign Currency Availability and Convertibility

There is no consideration of these issues in the contracts. Two main reasons may account for this: first, the concessionaires are mainly composed by local firms and second, the economic and political stability of the country -- despite current turmoil.

Political and Regulatory

With the law 80 of 1993, the Contracting Statute, legal and regulatory risk has been greatly reduced. This Bill establishes that any circumstance not imputable to the private party, the "economic equilibrium" would be reestablished by the government. For instance, tax reforms, changes in the rules of toll indexation or any regulatory change would be covered by the law 80, and therefore should not restrain the private sector to participate in the privatization process. However, it is important to notice that although profitability should not be affected, liquidity may become a problem for the concessionaire, as discussed above. It is also noteworthy that the Contracting Statute

does not allow for automatic adjustment, but gives the right to ask for the required adjustment. the concessionaire

Although expropriation can be a risk feared by foreign investors, the democratic tradition and political stability of the country may be the best guarantee.

Dispute Resolution

According to the contracts, for the road privatization program the dispute resolution mechanism is rather straightforward: the Ministry of Transportation decides. At first glance this may be perceived as a great risk for the private party, however previous experience may mitigate the effect. As the concessionaires have had previous business relations with the Ministry, they may know how to deal with the issue, either because the Ministry has a reputation of fairness and has not used such power, or because of the widespread belief that in Colombia a lawsuit filled against the Ministry is a lawsuit won.

Although there is no evidence, the dispute resolution scheme built in the contracts may have stopped foreign participants.

Demand - Minimum Traffic Guarantees and Maximum Traffic Conditions

Demand is a core issue in the contracts. Given the long term nature of the deals, there is great uncertainty about levels of traffic. Although future is always uncertain, the reforms undertaken by the government in recent years have driven the country to a position of difficult predictability. It is not clear yet in which markets the country will develop a comparative advantage, and how will this affect the demand for road transportation services. In order to reduce uncertainty, and create a market for the projects, the government awards a Minimum Traffic Guarantee. In addition, to participate of potential situations of unexpected high demand, the contracts includes allocation decision rules.

Minimum and maximum traffic and toll levels, by vehicle category, are included in the contract. The contract defines a certain value below which the private party will be compensated, and another value above which a defined allocation rule applies. The first of the two values, which represent the minimum income, is part of the criteria for the bid selection.

The most important is the Minimum Traffic Guarantee, as it creates a market for the projects by reducing uncertainty. In this way, the risk for the capital suppliers is greatly reduced. As stated in the theoretical framework, for this kind of projects capital suppliers, such as lenders, base their participation on the potential cashflow generated and not on the equity of the consortium. The pool of potential participants as capital suppliers is enlarged with this kind of provisions. Even further, without such arrangements it might be impossible to attract any lender.

The mechanism established in the contract to define the level of compensation is by comparing the actual income and the forecasted minimum income. The values are calculated simply by multiplying the toll by the traffic for each vehicle category and adding them up, making the required inflation corrections for comparability. Substantial differences between the first contract, Buga - La Paila, and the rest of the sample exist. For the former, the compensation to be paid each year is calculated based on the values of the same year, irrespective of the results of previous years. In contrast, the second group of contracts compare the values of all previous years -including previous compensations, and pays only when such value is lower that the similar projected value. From the investor's viewpoint, this might be less attractive, but in a way it is insuring a certain profitability level. From the government's perspective, this change brings at least two advantages: risk and administrative cost reductions. The former is rather straightforward, as it may exist cases "of a bad year" where normally the government would have to compensate, but if the profits made during previous years compensate the loss, then the government is relief from the obligation of compensation. For the latter, the savings

comes from the administrative effort that the Ministry has to make to include the resources into the national budget, and complying with all the required paperwork.

However, the important question to ask is How important is this change from a risk reduction perspective?

The Maximum Traffic conditions present two different cases. For the first contract -- Buga - La Paila -- the concessionaire would keep the resources up to an income of 125% of the projected. For the other six cases, above a certain maximum traffic level, the resources would be shared 50-50. The 50% of the government have to go to a trust, and can only be used for works in the road. The rationale for the 50% of the concessionaire is for compensation for the increase in maintenance cost due to increased traffic. In all the six cases, the ratio between Maximum and Minimum Traffic is 1.2. From the information available, it is not clear whether this ratio was prefixed, or whether all concessionaires offered similar levels of Minimum Traffic -- which was the awarding criteria. What is clear is that with this ratio, no proposal could offer a Minimum Income Guarantee below 0.83% -- the minimum established for the Bogotá-Facatativá road was 70%, otherwise the Maximum traffic would be below the projected one. To get a proper understanding, it would be interesting to have further research on this issue.

Financing

The financing risk, particularly in the refinancing phase is borne by the consortium. Refinancing is necessary for projects that raise the funds in markets where long-term financing does not exist. Conscious of the benefits of reducing this risk, the government is studying the possibility of setting up a facility, with the participation of the World Bank, that could guarantee the refinancing conditions. In addition, it is expected to offer financial instruments with longer maturities.

3.3.3.4 Project Risk

Project risks considers issues that are affect each specific project. Given that the uncertainty associated with each of the phases of the project is substantially different, each of the stages will be separately considered.

Planning And Preparation

This is the most risky part of the venture, because the bidders do not have the certainty of winning the bid. Whereas the level of investment for this phase is low when compared to the construction period, the financial demands of competition can be high.

Traffic Projections

It is important to realize that under changing conditions in the economy (see Argentina case), in the production settlement patterns, in the trucking technology, and inexperience with elasticities related to tolls (see Mexico case) it is very likely that forecasts will prove inaccurate. Nonetheless, traffic and toll levels are the most important issues with respect to income in the concession program. Expected profitability is then based on the traffic level forecast, which in combination with the overall risk perception, has substantial influence over bidders' final proposal. The Ministry of Transportation has been responsible of providing the projections along with the bidding documents.

Projections were contracted out by the Ministry to local consultants, who used simple regression methods, resulting in unreliable estimations -- in some cases the same traffic growth rate was applied to every year from 1993 to 2013 and for all the toll booths and for every vehicle category. Although participants in the process might go over the projections, it is time consuming (particularly with the short time frame of two months allowed for bid preparation), and costly to undertake such exercise. Therefore it is in the best interest of the government to provide make an extra effort to produce as credible

projections as possible. There has been a shift in the government's strategy, and they are recognizing the importance of providing good quality projections. This is evidenced in a project that is currently under preparation, where well known international consultants in the field were hired to undertake this task.

For policy makers this issue is difficult to handle, as the projections are very likely to be wrong. The question is then, how different would the deviation be from the actual traffic of simple or sophisticated projections? Would the use of the sophisticated ones ensure better results? Everyone hopes that this is the case. However, besides the accuracy of any kind of projections, the issue is that the government must provide forecasts at least as good as the ones the private party would have undertaken. Of course, this policy is rather loose, but at least it provides a guideline for action.

Design and Previous Knowledge of the Project

In a rush to start the execution of the privatization program, the Ministry started processes with poor quality designs (see Mexico case). In some cases, Phase I[20] and/or old and outdated designs were used[21]. The risk of funding mismatch is likely to be high given that the consortium is expected to find the financing for the project, major changes in the total cost may arise, and delays may happen. Depending on the risk level, liquidity may be compromised. The devastating consequences of a liquidity crisis have been treated with more detail in the discussion over the "General Compensation System".

In principle, the return is not greatly affected as the government recognizes a substantial portion of the costs, as explained later in the cost overruns section. In practice, the consortium is asked to bear part of the risk of the mispreparation of the project. This is particularly important because the government is asking the private sector to assume a

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[20] Phase I corresponds to a preliminary study that uses aerial photography with scale between 1:25.000 and 1:10.000, and uses existing maps to determine all technical features (geotechnical, geological, hydraulic and hydrologic). The geometric design consists of determining the feasible lines and deduce the approximate alignment.

[21] Information provided by officials interviewed.

risk, that although normally considered to be best handled by the concessionaires, it is exogenous to them.

Even further, I consider that the government may be exposing itself and the concessionaire to unnecessary risks as a result of a weaknesses in the project preparation process. Assuming that the final cost of the project is not related with the preparation effort, but that the difference between the final and the forecasted cost is much greater in the case of poor preparation, the government is not in a good position to predict an appropriate level of risk provisions.

The government has been considering different options, and among them the possibility of contracting out the final designs, and include them as an input to the request for proposals, liberating the concessionaire of this task[22]. Currently, the concessionaire has a period that oscillates between 3 and 6 months after the signature of the contracts to complete the final designs.

To what extent should the designs be completed? How much discretion to the private party should be allowed, as to gain from their experience? How much should the uncertainty be reduced by providing final designs? Which are the risks associated with providing final designs? These decisions are part of fundamental trade-offs that policy makers have to face.

Technology

The technology issue seems to be in accordance with the theoretical framework. Road construction techniques, similar to the traditionally used in Colombia are expected to be used in the program. Although there is no reference to the issue in the contracts, concessionaires might want to use some different technologies to cut their costs. Particularly, innovation may come from the technology transfer that can take place between local and foreign engineering firms that participate in many of the consortia.

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22 This corresponds to a shift to the left in Miller's Analysis Framework (Figure 2.1).

However, one of the financing parts interviewed said that they are looking for foreign engineering firms to be part of the consortium, because of the weak financial capacity of the local firms relative to the size of the projects, but not because of technical weaknesses.

If the government decides to include the final designs, this may be interpreted as a government's commitment with reducing uncertainty rather than with promoting technological innovations.

Environmental License Procurement and Mitigation Plan

Environmental license procurement is one of the issues that has brought more discussion in the road privatization program. There has been some evolution in the contracts: while in the first concession awarded, six months before the others, the environmental license was not mentioned, in the second contract the responsibility of procurement was on the Ministry of Transportation, and for the following contracts the responsibility was shared. From a reading of the contracts it is not clear which is the difference between the full and shared responsibility. In both cases, the government would recognize all the costs that are a consequence of delays in the license procurement, and the extra cost resulting from the need of additional work required for the Environmental Mitigation Plan. The government recognizes these extra cost through the "General Compensation System". As discussed before, one of the main problems of this system is its unsuitability to properly meet the concessionaire's needs, particularly the debt payment schedule. In principle, getting the license should not be particularly difficult given that most of the works are where existing projects are, even if in some cases are require expansion of the capacity. However, it would be important to study the typical delays and reasons caused by environmental procedures in Colombia.

The governmental agency in charge of issuing the environmental license and approving the mitigation or management plan is the recently created Ministry of the Environment. With a stronger autonomy exercised by local mayors, issuing has become a difficult task of coordination, particularly when national interests differ from local ones.

The delays caused by the time required to have approved the license might be against the privatization program, and the government should take some action on this. One of the possibilities available is that before the opening of the bidding process, there is an agreement in principle with the authorities implied.

Land Availability and Acquisition

The contract has defined a rather difficult mechanism for land acquisition. The main limitations arise from the precarious level of detail in the designs and the financial constraints. The contracts state that the concessionaire is responsible for providing the resources for acquiring the land plots. The resources must be deposited in a fiduciary created under the contract's framework for the construction and operation of the road. The Ministry is responsible for the negotiation and acquisition of the land, according to the working plan, liable for the adequate provision of the land, in such a way that no delay should occur. The working plan is not necessarily the original one as it might have some modifications resulting from the final designs.

Two problems can arise from this procedure: time delays and land cost above target. For the former, the contract stipulates that the delays will not be considered to be the concessionaire's fault, and that any resulting economic imbalance would be paid through the "General Compensation System". For the latter, the concessionaire is responsible for providing the total amount of the resources, and the difference will be paid back by the government using the "General Compensation System" as well.

From the interviews of both private sector and government, it can be said that the land acquisition and availability process has been one of the major problems in the Colombian toll road privatization program. Although they arise during the construction process, the difficulty is of planning nature. However, because the acquisition is during the construction period, the problem arises in that phase. It is worth mentioning that the critic is not to the practice of buying the land close to the time when it is required, as this

might be better from a use of resources viewpoint, but to the uncertainty that is created about its availability on time.

Contract Negotiation

The main issue in the negotiation of the contract is the level of competitiveness in the bidding process. Of all sectors in the Colombian infrastructure privatization process, the road sector is the one that presents the lowest average bidders per project (Table 3.7). More than half the cases studied had only 1 bidder. In those, the procedure allowed the direct negotiation with the only bidder instead of starting a new bidding process. Under these circumstances it is very likely that pressures felt by Ministry to show results, gave the consortium a powerful position during the final negotiations. This is by no means an assessment of the issue as the bidding documents were not reviewed.

Table 3.7 Average Bidders per Sector

Sector	Average Bidders	Number of Projects
Airports	6	1
Electric	3.5	6
Gas Transport	2	4
Water	2	2
Roads	1.4	7

Data source: DNP, 95b

The speed of the process could have stopped the participation of many consortia. However, according to one of the officials interviewed, most of the consortia were formed by many of the largest local construction firms joining together. Therefore, each of them was participating in several projects. This may be the main cause for having only one proposal per project. Even further, if this is so, even before awarding the project the bidder knew that the possibility of competing bidders was extremely low, and under these circumstances it is very possible that the efficiency gains from competition were lost -- one of the main goals of privatization programs.

Whatever the reason for this problem, what is really interesting is the warning signal sent to the government. For the future agenda, something has to be improved to make sure that the country would benefit from the efficiency gains of the private sector, only realizable in a competitive environment. One of the reasons could be the sector's lack of attractiveness, real or perceived, particularly as an aftermath of the Mexico toll road experience (See Mexico case), as has been stated by all the interviewees.

Quality of the Bidding Documents

There is a concern regarding the quality of the bidding documents. This has been stated by all the parties involved, when asked about the issue. Although most of the problems concerning the quality have already been discussed, it is useful to focus on the role of the bidding documents. As exposed in the theoretical framework, these documents determine the basis on which the different participants will make their proposals, according to their assessment of the business opportunity.

If this is modeled through the risk-return trade-off, the government has an incentive to reduce the sources of uncertainty that may arise from this key document. This has been acknowledged by the government in a document about private participation in the infrastructure sector of April 1995 (DNP, 1995b). For the road program, the government has decided to make of the Tobia Grande-Puerto Salgar project an example because of its preparation and promotion. From the preparation point of view, leading international investment banks and consultants were hired, for the bidding document production and the main technical studies that support it.

A better and clearer knowledge of the project by all the participants allows a better allocation of risks. Under these circumstances of reduced uncertainty, parties should be more willing to accept the risks as better assessment becomes easier.

Construction

When the contract is awarded uncertainty is greatly reduced. However, a relatively short period (when compared to total length of the contract) of high resource requirements and high risk starts. The main issues during the construction phase are related to costs increases that may lead to liquidity difficulties. Many of the problems that arise during this period have their origin in the previous phase. The main issues are discussed below.

Time Delays

Each party should be responsible for the delays that it has caused. In the contracts, delays are penalized according to the phases of design and construction, and the penalties are stated as daily amounts (percentages of the estimated cost of the phase, 0.1% for design and 0.01% for construction). This kind of structure is common in the contracts irrespective of the kind of arrangement.

Delays caused by land acquisition problems tend to be the most common type of delays not imputable to the concessionaire. The main issues around land acquisition have already been analyzed. The private party should be compensated through the "General Compensation System".

Another source of delays are due to Force Majeure events, in which case the concessionaire will not be penalized, but will not be compensated either.

Cost Overruns

Cost overruns is an interesting issue to analyze in the Colombian case. There are four different ways of having cost overruns. The first is related to unpredictable additional amount of work derived from the preliminary nature of original designs. The amount in which this additional work varies, normally depends on the quantity and quality of the information gathered during the preparation of the bidding documents. The second is

related to the management of the project itself, and it is not worth further discussion, as its consequences clearly must be responsibility of the concessionaire. The third type corresponds to a paragraph -- that not always exists -- in contract scope clause called "optional works", which defines additional works that may be undertaken. The last one corresponds to additional work not considered in the original project, but that the government deems worth undertaking. In principle the first two cases should be borne by the private party. The last one, as it was not part of the original contract must be paid by the host government.

For the first case, unexpected additional work within the scope of the contract, risk was allocated differently across the sample contracts analyzed. In one case, Buga-Tulua, this issue is not mentioned, therefore it can be said that the risk is totally assumed by the private sector. For the contracts signed in August 1994 this issue was included, however there are differences. In four out of the six contracts, the government assumes full risk when the final cost does not exceed 130% of the estimated cost. Over this value the risk is totally transferred to the consortium. In one of the cases, the threshold is 110% instead of 130%. For the remaining contract in the sample, the formula is more complicated, as the government assumes full risk up to 130% of the cost, 75% of the risk between 130% and 150%, and above 150% the private sector assumes full responsibility (Table 3.8). A condition for the government to assume the risk is that the additional work cannot be caused by reason imputable to the consortium.

Table 3.8 Risk Allocation for Cost Overruns

Project	Type of Project	Cost Overrun	Risk allocation Gov/Consortium
Buga - La Paila	C		0 / 100
Bogotá - Villavicencio	C	< 30%	100 / 0
Sta Marta - Paraguachón	R	< 30%	100 / 0
Carreteras Meta	R	< 30%	100 / 0
Bogotá - El Vino	R	< 30%	100 / 0
		30%< x <50%	75 / 25
Bogotá - Guasca	R	< 30%	100 / 0
Barranquilla - La Cordialidad	R	< 10%	100 / 0

The level of cost overruns assumed by the concessionaire was one of the seven awarding criteria for the Bogotá - Facatativá project, therefore it is likely that it was so for the other contracts as well. It is clear that the formula varies, therefore as there was no information available for all the contracts it is difficult to provide concluding remarks. It would be interesting to analyze all cases, and compare the conditions offered by the government in the biding documents with the ones in the proposals, to see if always correspond to cases were the concessionaire bears the lowest possible risk.

Some Colombian officials consider that the government is more exposed to risk than it should be as a consequence of these agreements. On the other hand, one of the financing participants in one of the consortia mentioned that the engineering firms were not willing to assume cost overrun risk with the existing level of detail in designs. Once again the focus should be in the quality of the requests for proposals. The case just exposed shows a clear trade-off between the bidding documents preparation and the ability to allocate the risks in a more efficient way.

The third type, "optional works", the treatment is the same than for unexpected additional work within the scope of the project (Table 3.8).

For the last case, additional work outside the scope of the contract, the important issue is the determination of the cost of the new work. For the Colombian case, the contracts of the sample stipulate that the cost of the new work will be calculated based on the unit costs presented in the proposal, indexed by inflation. In the event were there are unitary costs that were not defined before, a negotiation should take place.

It is important to notice that there are no single formulas, but rather there is a dynamic process. For instance, In Mexico the concessionaire was fully responsible for the first 15% of cost overruns.

Force Majeure

As expected, the government recognizes all the amounts required to reconstruct any damaged part caused by an event of force majeure. The concessionaire will be exempted of all its responsibilities and delays caused by such events, but it will not be compensated for that. However, in the six contracts of the sample signed in 1994, the government will still maintain the minimum level of traffic guarantee. This is motivated by the fact that concessionaires have predetermined financial obligations.

Subcontracting

According to the contracts, the concessionaires are free to subcontract any of the works required, but they remain fully responsible for the works, both in standards and schedule.

Operation

Operation is the longest phase of the contract, 14.3 years on average for the Colombian case (Table 3.9). The issues discussed are related to the uncertainty about the future and the way they are managed. As experienced has shown that forecasts are very likely to be wrong, future demand based on projections may be the most important consideration during operation. However, with time risk reduces as a general pattern of demand is developed, and realizable income is more predictable. The parties can assess better the situation even if it turned out to be a better than or worse than expected situation.

Table 3.9 Contract Duration

Project	Type of Project	Contract Duration (Years)	Operation Duration (Years)
Buga - La Paila	C	15.0	13.8
Bogotá - Villavicencio	C	16.0	14.8
Sta Marta - Paraguachón	R	16.3	15.5
Desarrollo Llanos	R	19.3	18.0
Bogotá - La Vega	R	15.8	14.5
Patios - Guasca	R	13.4	12.0
Barranquilla - La Cordialidad	R	12.3	11.6
Average		15.4	14.3

Weighing Stations

An important issue of the concession system is the benefit brought by shifting away the responsibility and incentive of controlling the weight of the freight vehicles from the governmental agencies to the private party, who is expected to be significantly more efficient. The main incentive the concessionaire has for performing an adequate control are the potential savings in maintenance costs, and their positive effect on profitability. This part of the contract does not pretend to replace the "Policía Vial" with the concessionaire or to put police functions in the private sector, but rather to create a coordination between both of them for this task, and presumably as a way to fight bribery -- as exposed in chapter 2. The Police remains the only body authorized to issues overloading tickets.

Operation Agreements are part of the contracts. Weighing is among the activities regulated, and it is expected of the concessionaire to weigh half of the freight vehicles that use the road. Weighting has always been a major problem for the maintenance of the road network. Colombian authorities have been unable to control overloaded freight vehicles. This practice deteriorates the road conditions, increasing the maintenance cost and reducing the expected life of the road.

Road performance - competing road

As opposed to the Mexico case, in Colombia there is not always a free road as an alternative to a toll road. Even further, the roads that are being released to concession are the current most busy ones in the country. The contract does not define any situation about the construction of a competing road, particularly the possibility of a road built by a local or regional authority. However, the concessionaire is not exposed to the downside risk, as the contract includes the Minimum Traffic Guarantees.

Exit Option

The contract is not clear about an early termination of the agreement. This uncertainty is more relevant when project financing is practiced, as the guarantee of the lenders is off-balance sheet (i.e., mainly the cashflow generated by the project as opposed to the equity of the consortium). What the contract provides is the certainty that the investment already made will be paid to the consortium, under any circumstance. Mechanisms for allowing the current owner of the project to sell it are not defined either.

Maintenance Standards

An operational agreement makes part of the concession contract, where the standards for the operation phase are defined. It is responsibility of the concessionaire to maintain them, and failing to do so results in penalties.

IV. FINAL REFLECTIONS

This chapter will be more focused on presenting reflections over the main issues discussed before, rather than presenting straightforward conclusions. The exercise carried throughout this thesis was to understand how applicable the theoretical principles of privatization infrastructure are, and to go over the main points that explain why privatization poses new and major challenges to policy makers.

The Colombian case presents an attempt to include the participation of the private sector in the provision of roads, just as the Mexican or Argentine ones. There are differences and similarities among all of these cases, as an evidence of the inexistance of a single formula for privatizing infrastructure. The basic principles that guide the issue offer a wide variety of possibilities, and therefore policy makers around the world have the task of finding options that are suitable for their environment and acceptable for foreign participants.

Three different levels can be taken into account. First, the general economic and investment environment of the country, which is outside the road program, but that is considered to influence greatly its development. Second, the strategy pursued by the government for infrastructure procurement, and finally, at a micro level, the issues that arise from the projects or contracts. For the purposes of this thesis, the country level is exogenous. Therefore, in this section instead the information will be presented without further reflection about the fundamentals of privatization.

Country Level

The main issues discussed at the country level were the general social, political and economic environment, the legal framework and the development of the local capital markets. Although all of them are outside the field of infrastructure provision, they all

play a role for the implementation, development and performance of the privatization schemes.

The most complex picture is presented at the social and political aspects. However, despite these issues, the economic and investment environment seems to be adequate, and Colombia's recent economic performance has started to gain international recognition. Particularly thanks to its sound macroeconomics management and its sustained stable growth.

The legal framework has recently experienced major changes. The most important piece of legislation is the law 80 of 1993 --Contracting Statue. which creates a suitable environment for private sector participation. Its main contribution can be divided in two: signaling to the private sector of the long-term commitment with the process, and most important, the guarantee of a fair return.

For the capital market development, the government has been working trying to create the conditions for a more efficient banking system and the strengthening of the securities market. The development of the market for securities, both in volume and in variety of maturities -- particularly long-termed, would be of great importance for the future evolution of the infrastructure provision strategy. Currently the government is working in parallel, as it has stated that the current infrastructure privatization is a suitable vehicle for the development of long-term securities.

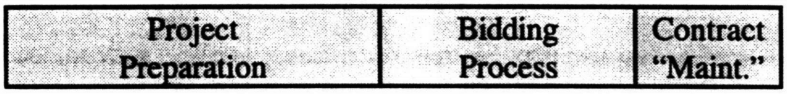
In general, it can be said that at the country level, Colombia has been implementing the policies that support a healthy infrastructure privatization program. In the aspects were further development is required, like the capital markets, the government is supporting the change in the right direction.

Program Level

The strategy followed by the government during the time comprising the contracts analyzed can be characterized by relatively short periods of preparation and potentially large requirements for the "maintenance of the contract". By "maintenance of the contract" I mean the time and effort that will be required for the contract's administration. That is resolving all the emerging conflicts, particularly regarding compensation. Figure 4.1 and 4.2 show graphically the effort required for each of the three activities. The former represents the potential current situation, which may have been created by an urge to produce results. The latter presents a strategy which has as one of the main objectives to reduce future conflict, allowing for a more efficient use of the resources and for better preparation of the projects.

Figure 4.1 Potential Activity Effort

Figure 4.2 Proposed Activity Effort



There has already been a change in the preparation of the projects, but the results are to be judged in the future. It would be interesting to follow up the process and compare with the current situation. This thesis may be the basis for comparison for future work. Of course, the government's strategy is not set in terms of effort for each of the activities. Therefore, this analysis is more directed to the output and the way the resources are used.

It is noteworthy that none of the parties' business is going to court. However if they have to for the survival of their firm, they will do so. This may be particularly true in the case of Colombia, where there is the widespread belief that a lawsuit against the state

is a won lawsuit. Nevertheless, in normal circumstances, if firms have other attractive investment options, they would search for alternatives where most of the time could be spent in their core competence.

It is noteworthy that it is too early to draw definitive conclusions about the program, partly because there are not many projects in full operation. However, there is room to highlight some critical aspects in the development of the road privatization program.

Project Level

Project or contract level refers to the issues that are still very general, but that do not make part of the global strategy. Four main issues should be highlighted: awarding criteria, competition in the process, risk and future conflict.

Colombian policy makers have considered that there are too many awarding criteria, and that they do not necessarily lead to the improvement of the bids. Therefore, they are currently working on a simpler formula. From the interviews, it was evident that the participants consider that the process has been transparent -- maybe because there was only one bidder in many cases. However, policy makers may not decide to go to the extreme of using a single criterion like in Mexico. A careful selection must be done, to avoid undesirable outputs like the Mexican shortest concession period criterion.

Competition in the bidding process is a goal to be sought, otherwise the country will not be able to take advantage of its benefits. The government has already taken steps towards a better promotion of the projects.

A large part of this work is dedicated to the analysis of risk, its sources and the way it should be managed. The search of potential sources of risk and its proper allocation is essential for the success of privatization programs. Adequate risk allocation

leads to the reduction of the project's overall risk, as the parties involved have a clear idea of their responsibilities and their rights. A big effort should be applied to the task of allocating risk to the party that can best handle it, as it is the basis for the construction of a fair deal. A detailed and careful risk analysis is necessary to avoid conflict throughout the life of the contract.

Infrastructure privatization deals are long, and therefore the signing parties have to realize that they are starting a long-term relation. Avoiding conflict by unambiguous and early allocation of responsibilities and risk builds confidence and trust in the participants, making easier the development of the contract and future relations. Even further, this may create an attractive 'environment' for potential entrants.

In my opinion, the main source of future conflict lies in the quality of the bidding documents, the deficiency of the land procurement procedures and the liquidity of the guarantees. Liquidity problems endanger a smooth development of the contract. Again, there is no right answer regarding how liquid the guarantees should be. For instance, in the case of Mexico and Argentina the compensation criteria was based on the increase of the concession period, which is the least liquid alternative. However, policy makers have to adjust to local conditions in order to be responsive to the private sector's needs, without leaving aside the general public's interests. This means that if there is room for win-win solutions while increasing the liquidity of the guarantees, policy makers should proceed in that direction. Liquidity crisis can be very disruptive for the development of the project, particularly since there are not flexible exit options.

Land availability does not necessarily have to be an issue -- as can be assumed from the literature for Mexico or Argentina, however in Colombia it is. Even if the new legislation allows the Ministry to pay market prices for land, unavailability of land when required has been a problem. In contracts where the resources come from the capital markets -- as opposed to the government, delays increase the cost of the project. If this happens, the concessionaire would require a fair compensation for it, and therefore it will

undertake the process for it. Rush, lack of preparation, or even changing alignments are among the reasons for these disruptions. There is the possibility that government officials see compensation mechanisms as the way to solve any problem along the way, and therefore preparation could be relieved to a second plane. I suggest that instead, the use of the compensation should be seen by officials as a failure to deliver the agreed -- except from the case of traffic level.

Bidding documents quality refers more specifically to designs, and traffic projections. There is no right or wrong answer for the level of detail of the designs. However, what must be avoided is a structure of pervasive incentives. In other words, policy makers have to make an effort to determine the level of detail required for the concessionaires to assume full responsibility for the cost overruns. If it turns out that under no circumstance the private sector is willing to assume the responsibility, then the policy makers have to minimize the risk for the government. For Colombia, in both cases the answer seems to lead towards reducing uncertainty -- i.e., detailed designs. An additional situation that may arise from a poor preparation of the project is the need for alignment change, as it was the case in Mexico. Changing conditions once the contract has been signed opens possibilities for conflict. This is not to say that required changes should not be undertaken, but that it should be a clear objective of the parties to minimize such situations. Having a contract that from the beginning is telling that future negotiation is required or may be achieved may create pervasive incentives.

Traffic projections is another hot issue. It is very unlikely that the projections will turn out accurate, despite how sophisticated they might be, particularly under changing economic conditions. Therefore, and given that trust is vital for the healthy development of the contract, policy makers should design a strategy responsive at this level. Although vague, what I suggest as guidance is that projections should be undertaken at least as sophisticated as the private sector would. It is clear that this statement does not provide an answer, that different bidders would be willing to spend a different level of resources

and that they may have an incentive to require more than they would do. However, this principle provides a basis for behavior, a guidance.

By now it must be clear, that privatization is no more than joining efforts to deliver win-win situations -- particularly on behalf of the public's interest -- by taking advantage of the capabilities and expertise of each of the parties involved. Few principles guide privatization and the search for a successful implementation is the challenge for policy makers.

ANNEX 1.
TOLL ROAD CONCESSIONS - RISK ASSIGNMENT

The following table contains a list of risks that commonly occur in toll roads concession projects, provides means by which to manage and to properly allocate these risks, and raises some other issues that might be considered. There is still work to be done in this area, and new sources of problem might arise in the future. This table is not a complete survey, and might be completed with some more experience.

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
1. COUNTRY			
a. Political / Legal / Regulatory			
Expropriation/ nationalization.	Govern. (G)	- Clause on compensation when contract is liquidated unilaterally, or a clause on Force Majeure. - It would be better from the investor's viewpoint, if there is a pre-existing law or constitutional mandate about fair compensation. - It can be possible thinking of a standby credit by the WB. It would be a credit to the government, managed by the bank, and only used if nationalization or expropriation occur.	- Government lacks of credibility. In this case the existence of the WB's standby credit is likely to work. - Internal agendas, a standby credit might require congress approval, or might reduce government's debt plans.
Insurrection.	G	- Clause on Force Majeure provisions. - Country should assess its situation and be prepared to allow higher risk premium.	

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
Taxes (changes).	G	- Clause on fiscal regime. Requires a clear method of compensation (in both direction) and explicit statements about which taxes will be included (e.g. only income tax; income and any war tax; only sale's tax...). - Defining clearly the timing of compensation payments is important.	- The agency has no resources to compensate the concessionaire at the right time. Two possible actions: 1. Asking the agency to have a reserve for this eventuality. 2. Include the government's budgetary agency in the contract (i.e. the Ministry of Finance signs the contract as well). - Would this take into account only direct effects? What about an increase in sale's taxes?
Dispute resolution system.	G	- Clause on how to solve conflicts. Clear procedures of how disputes will be handled must be defined (e.g. third party binding arbitration). - Third party disputes would require court or other government agency, the country must be aware of its system, and allow for higher risk premium. - Define which kind of disputes (if any) will be handled at an international court.	- What if there is a dispute with another government agency, and this would delay the project?
New legislation.	G	- Clause defining a mechanism for compensation (in both directions), when a legislative change affects the project. - A committee representing both parties, can be in charge of getting to an agreement over the issue (specific deadlines must be defined). - Cashflow and minimum/maximum income provisions must be considered.	- When is this applicable? What if there is import barriers for a material that can be found locally but with different quality?

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
b. Economic / Market			
Inflation.	G	- Clause on toll indexation.	- The income is indexed in local currency, but still doesn't necessarily maintain it's purchasing power parity with respect the currency in which the concessionaire has its obligations. (inflation and exchange rate)
Exchange rate.	C/ G	- In the short run: use of swaps and other hedging instruments, when available. - Exchange rate risk is commercial in nature. - Definition of a maximum difference between inflation and devaluation. For larger differences compensation would occur. This mechanism is to cover from exogenous shocks.	- How easy is to define this value.
Interest rates.	Concess (C)	- Use of swaps and other hedging instruments, when available.	- These instruments might not be developed for the country's currency.
Foreign exchange availability.	G	- Include other agencies in the contract (i.e. the Ministry of Finance should sign the contract), backing a clause where the government will make the resources available, through the Ministry.	- In case of crisis what priority will the government give to the project?
Foreign exchange convertibility.	G	- Include other agencies in the contract (i.e. the Ministry of Finance should sign the contract), backing a clause where the government facilitates convertibility through this agency.	- ditto.

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
Demand.	G/ C	- In principle a commercial risk that should be borne by the concessionaire. However, if risk is so great as to avoid private involvement the government could share it. - Clause on minimum and maximum income. - Minimum income measures must be consistent with debt payback cashflow. - Maximum income measures must keep incentives for concessionaire (a percentage of the "excess" income must go to the concessionaire).	
2. PROJECT			
a. Pre-construction / Design			
Technology.	C	- The real difficulty will be in the financing contract (between the concessionaire and the financing agencies). In general, proven technology should be preferred, where unexpected events should not be a problem.	- What would happen to the potential for innovations? Should this be left for a different kind of project financing.?
Financial closure.	C	- Clause including deadlines for this activity, with reasonable penalties for time overruns. - Clause that certifies that the concessionaire has a proper knowledge of the sources of materials, conditions of the existing road, etc. can help to give confidence to the financing agencies.	
Required change in design (at detailed stage), as a result of preliminary studies (i.e. topographical or geological).	G / C	- Can be left to the concessionaire if the preliminary studies count with its credibility. A pool of potential bidders can oversee - Monetary contingency provisions.	

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
Changes in specifications at the government's request.	G	- Clause on additional works. The way works will be paid has to be detailed (including timing). - It is important to define which kind of works will be compensated. Mainly for major works, otherwise cost overruns should be understood as commercial risk.	
Changes in specifications suggested by the concessionaire.	C / G	- Clause on additional works. It is important to determine the acceptable reasons for changes.	
Cost or delay testing materials or existing construction.	C	- Clause that certifies that the concessionaire has a proper knowledge of the sources of materials, conditions of the existing road, etc. - Clause including deadlines for this activity, with reasonable penalties for time overruns. It might be relevant to work closely with the potential bidders during the project preparation phase.	
Permissions (delays because of license requirements).	G / C	Depends on the license. - Licenses that can go faster because the concessionaire has the interest of procurement, or the interest of presenting good quality requirements (i.e. good plan or study), should be borne by the concessionaire. - When governmental procedures are not clear, or delays within a government's agency occur, the concessionaire can not be penalized and therefore the government should bear the risk.	- How to define what is not a clear procedure, or under which circumstances the concessionaire has no responsibility for the delay?

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
Changes required due to archeological findings or environmental issues.	G	- Clause on mechanism that allows delays or admits changes in design in an expeditious way. - Clause on delays not imputable to the concessionaire, without penalties, and with cashflow considerations. - Legislation on the issue might exist.	
Non-compliance with environmental standards.	C	- Clause on the need of an environmental working plan, including penalties for breaching it, and ways to solve the problem. The plan must be prepared by the concessionaire, and approved by the correspondent agency.	
Non-compliance with construction standards.	C	- Clause on required standards, with performance bonus and payments as a mechanism to fix the problem. - Insurance on work standards and stability must be required.	
b. Construction			
Completion on time/budget.	C	- Fixed price contracts. - Turn Key Contract type	- Does firms have the capacity for assuming this kind of agreement for large projects?
Performance.	C	- Insurance on work stability.	
Force Majeure.	G	- Clause on what constitutes Force Majeure and mechanisms to solve it. How penalties are waived (both parties) must be defined. - Cashflow considerations (or request for debt restructuring) must be included.	- What is exactly meant by Force Majeure? What circumstances are included? Listing the cases in the contract might help, as opposed to simply mentioning existing legislation.

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
Land acquisition.	G	- Clause on mechanisms for land transfer/availability, and penalties. - It must recognize cashflow constraints. - It is important to define clearly to all parties terms such as availability.	- What happens if there is a backlog in the land acquisition by the government? How would this affect construction? - Are government's instruments to buy land expeditious?
Materials used can cause unforeseable maintenance costs.	C	- Clause that certifies that the concessionaire has a proper knowledge of the sources of materials, conditions of the existing road, etc. - Clause including deadlines for this activity, with reasonable penalties for time overruns.	
Injury or damage to property adjacent to site.	C	- Insurance. - Clause on civil responsibility.	
Unforeseen ground conditions.	C	- It is important to hire a geological study that counts with the acceptance/credibility of potential bidders (they can even oversee it). - It might be relevant to work closely with the potential bidders during the project's preparation phase.	- Even if the concessionaire oversaw the study, can he be liable if there is an unexpected ground condition?
Material sources.	C	- Clause that certifies that the concessionaire has a proper knowledge of the sources of materials.	
Subcontracting failures.	C	- Clause on the concessionaire's overall responsibility.	
Delays due to weather conditions.	C		
Labor: Price and availability. Injury and death.	C	- Clause on concessionaire's labor responsibility, in all aspects, and complying with existing law. - Insurance.	

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
Damage to other roads or structures.	C	- Clause on third party responsibility. - Insurance.	
Road accidents due to unsafe construction works.	C	- Clause on concessionaire's responsibility on these cases (responsible to third parties and government as well).	
Third party claims (dust/noise pollution, damage to infrastr., material dumping error, loss or injury to livestock/crops, ...).	C	- Clause on third party responsibility.	
c. Operation			
Force Majeure.	G	- Clause on what constitutes Force Majeure and mechanisms to solve them. How penalties are waived (both parties). - Cashflow considerations (or request for debt restructuring) must be taken into account.	- What is exactly meant by Force Majeure? What circumstances are included? Listing the cases in the contract might help, as opposed of simply mentioning existing legislation.
Competing road.	G	- Clause on setting conditions for possible competitive roads (e.g. level of toll or design characteristics). This conditions can be made on a comparative basis.	
Other works that affect road's level of service (i.e. railways works).	G	- Clause on compensation if the work affects demand or if it implies additional investment from concessionaire. - Mechanism to get an agreement on this issue must be defined (e.g. creation of a committee conformed by representants of both parties, binding third party arbitration).	

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
Increases in petrol prices (effect via price elasticity of demand).	G / C	- Minimum / Maximum income provisions.	
Technology changes over the concession period (i.e. maintenance costs should decrease).	C	- No clause, or clause stating that in this case, resources belong to the concessionaire.	
Change in traffic composition that would lead to higher maintenance cost than forecasted.		- Flexible maximum income clauses that maintains an incentive in the concessionaire. - Tolls must be set by vehicle category, in accordance to the damage done to the surface.	- What if there is a government policy change that affects the traffic composition? (e.g. change in gasoline price)
Road blockage due to major accident (trucks,...).			
Local police impose traffic conditions (e.g. sports, parade).			
Time overrun in forecasted maintenance works.	C	- Clause on maintenance program and creation of committee that periodically evaluates the plan. - Penalties if plan is not fulfilled.	
Maintenance standards.	C	- Clause on maintenance standards, and minimum level of service. It should include penalties and ways to overcome the deficiency.	

TYPE OF RISK.	RISK BEARER	RISK ASSIGNMENT/MANAGEMENT ACTIONS.	FURTHER ISSUES
d. others			
Legal.	C / G	- Governments should encourage the concessionaire to hire a local counsel.	- What if still there are misunderstandings regarding different interpretations?
Insolvency of promoter.	G	- Budget Agency takes responsibility if expeditious payment if required. (i.e. Ministry of Finance must sign contract).	
Insolvency of contractors.	C	- Clause on concessionaire's responsibility on contractors.	
Insolvency of consortium.	C	- Clause that allows an expeditious way of liquidating the contract in this eventuality, and possibly sell it (auction). - Mechanisms and time must be clearly defined.	
Inability to refinance.	C/G	- Given the mismatch between the debt and the project time span, the involvement of the government in the refinancing of debt might be necessary. (It might be through a stand by loan from the WB).	

ANNEX 2.
Standard & Poor's Corporate and Municipal Rating Definitions.[23]

For debt obligations issued outside the US, the ratings are calculated on the same basis than for domestic corporate and municipal bonds. The ratings measure the creditworthiness of the obligator but do not take into account currency exchange and related uncertainties.

The ratings are based, in varying degrees, on the following considerations:

1. Likelihood of default-capacity and willingness of the obligator as to the timely payment of interest and repayment of principal in accordance with the terms of the obligation;
2. Nature of and provisions of obligation;
3. Protection afforded by, and relative position of, the obligation in the event of bankruptcy, reorganization or other arrangement under the laws of bankruptcy and other laws affecting creditor's rights.

AAA Debt rated 'AAA' has the highest rating assigned by Standard & Poor's. Capacity to pay interest and repay principal is extremely strong.

AA Debt rated 'AA' has a very strong capacity to pay interest and repay principal and differs from the higher rated issues only in small degree.

A Debt rated 'A' has a strong capacity to pay interest and repay principal although it is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than debt in higher rated categories.

BBB Debt rated 'BBB' is regarded as having adequate capacity to pay interest and repay principal. Whereas it normally exhibits adequate protection parameters, adverse economic

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[23] Source: Standard & Poor's, Bond Guide, April 1996, New York, N.Y.

conditions or changing circumstances are more likely to lead to a weakened capacity to pay interest and repay principal for debt in this category than in higher rated categories.

BB, B, CCC, CC, C Debt rated 'BB', 'B', 'CCC', 'CC' and 'C' is regarded, on the balance, as predominantly speculative with respect to capacity to pay interest and repay principal in accordance to the terms of the obligation. 'BB' indicates the lowest degree of speculation and 'C' the highest degree of speculation. While such debt will likely have some quality and protective characteristics, these are outweighed by large uncertainties or major risk exposures to adverse conditions.

Plus (+) or Minus (-): The ratings from 'AAA' to 'CCC' may be modified by the addition of a plus or minus sign to show relative standing within the major categories.

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